

سلسلة كتب الاستاذ





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# Theme

### Number Sense and Operations



### Units of the Theme

Unit 1

## Decimal Place Value and Computation

Concept 1.1: Decimals to the Thousandths Place
Concept 1.2: Adding and Subtracting Decimals

Unit 2

#### Number Relationships

Concept 2.1: Expressions, Equations, and the Real World Concept 2.2: Factors and Multiples

Unit 3

## Multiplication with Whole Numbers

Concept 3.1: Models for Multiplication

Concept 3.2: Multiplying 4-Digit Numbers by

2-Digit Numbers



## Decimal Place Value and Computation

Concep

## 1.1 Decimals to the Thousandths Place

Lessons 1&2:

The Journey Begins
Decimals to the Thousandths Place

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Read numbers from the Milliards place to the Hundredths place.
- Identify the value of digits from the Milliards place to the Hundredths place.
- · Read decimal numbers to the Thousandths place.
- Write decimal numbers to the Thousandths place.

Lessons 3&4:

Place Value Shuffle Composing and Decomposing Decimals

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- Explain how a digit changes value as it moves to the left or right in a decimal or whole number.
- Compose and decompose decimals in multiple ways.

Lesson 5:

**Comparing Decimals** 

#### **Learning Objectives:**

By the end of this lesson, the student will be able to:

Compare decimals to the Thousandths place.

Lesson 6:

**Rounding Decimals** 

#### Learning Objectives:

By the end of this lesson, the student will be able to:

· Round numbers to the nearest Tenth, Hundredth, or Thousandth.



#### The Journey Begins **Decimals to the Thousandths Place**

#### Remember

#### **Decimal Fraction**

It is a number that represents a value less than 1, but greater than 0.

#### The whole one can be divided into

Ten equal parts

Each part is called one tenth.

$$0.1 = \frac{1}{10}$$

One hundred equal parts

Each part is called one hundredth.

$$0.01 = \frac{1}{100}$$

One thousand equal parts

Each part is called one thousandth.

$$0.001 = \frac{1}{1.000}$$

Note that: In decimals, zeros can be added to the right of the last non-zero digit without changing the value of the number.



**Also:** 0.2 = 0.20 = 0.200

0.3 = 0.30 = 0.300

,... and so on.

#### **Decimal Number**

- It is a number that represents a value greater than 1.
- The decimal number consists of two parts separated by a decimal point.

Whole number part (integer) To the left of the decimal point

Decimal parts (decimal fraction) To the right of the decimal point

It's read as: Three hundred fifty-seven and ninety-four hundredths.

#### Reading Numbers from One Milliard to Thousandths

#### earn To read any decimal:

- Divide the whole number into numerical groups according to the place value table.
- Read the number from the left, each number group is followed by its name.
- Read the decimal parts followed by the name of the last decimal part on the right.

4-			Who	ole Numb	er		The Little			int	De	ecima	als
Milliards	Millions			Thousands			Ones			Decimal Po	S	Hundredths	Thousandths
Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Dec	Tenths	Hund	Thous
6	0	0	8	0	4	5	1	7	0		1	7	
6 milliard	8 mi	illion		45 the	ousai	nd	1	70		17	hun	dre	dth

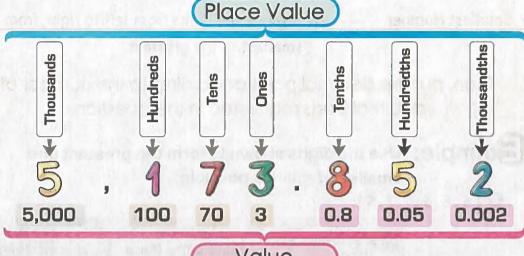
#### The previous number (6,008,045,170.17) is read as:

Six milliard, eight million, forty-five thousand, one hundred seventy and seventeen hundredths.

n	lote the read	ing of the f	ollowing numbers:
<b>a</b>	2,450.8	is read as:	Two thousand, four hundred fifty and eight
	TOT 040 OF	DAN 16 Edit	tenths.
9	705,012.05	is read as:	Seven hundred five thousand, twelve <b>and</b> five hundredths.
C	5,027.008	is read as:	Five thousand, twenty seven and eight
		INTO SE INTERES	thousandths.
3	63,020.436	is read as:	Sixty-three thousand, twenty and four hundred
			thirty-six thousandths
	Write the fo	ollowing n	umbers in standard form:
a	Five thousa	and, six hun	dred, ninety-seven and five tenths:
G	Thirty thou	sand, fiftee	n <b>and</b> seven hundredths:
C	Seven millio	on, two hund	dred five and twenty-nine hundredths:
			seven thousand <b>and</b> thirty-one thousandths: on, one hundred <b>and</b> seventy-six thousandths:
a			umbers in word form:
6	125.39:		
C	20.09:		
d	63,247.008	•	
d	63,247.008		

#### The Value of Digits from One Milliard to One Thousandth

The place value and the value of each digit can be observed in the number 495,173.852 as follows:



#### Value

- Complete the following:
  - a In 56,258.96, the digit 9 is in the ...... and its value is .......
  - **b** In 87,022.8, the digit 7 is in the \_\_\_\_\_\_place
  - In 605.234, the digit 0 is in the place
  - d In 2,845.127, the digit 5 is in the \_\_\_\_\_\_ place
- Write the place value and the value of the encircled digit in the following numbers:

hi	Number	Place Value	Value
a	452,207.56		
0	6,500, 7 39.7		
0	9,009.00 9		
0	3 7,000,157.128		
е	80,218. 0 39		



#### To form the greatest and smallest decimals from given digits:

- **Greatest Number** Arrange the digits from left to right, from the **greatest** to the **smallest**.
- Smallest Number Arrange the digits from left to right, from the smallest to the greatest.

Then, put the decimal point according to the number of decimal parts requested in the question.

Example: Use the digits shown to form the greatest and smallest decimals possible:

**a** (6,8,3,2,7,5):

	Up to the Tenths Place	Up to the Hundredths Place	Up to the Thousandths Place
<b>Greatest Number</b>	87,653.2	8,765.32	876.532
Smallest Number	23,567.8	2,356.78	235.678

**(**9,3,8,5,2):

	Up to the Tenths Place	Up to the Hundredths Place	Up to the Thousandths Place
<b>Greatest Number</b>	9,850.2	985.02	98.502
Smallest Number	2,058.9	205.89	20.589

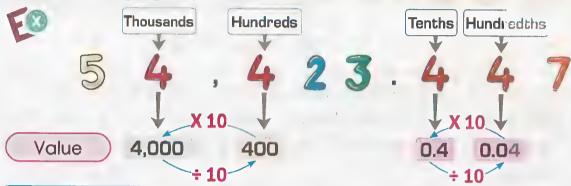
#### 5 Make up the greatest and smallest decimals of the given digits:

	Digits	The	greatest nu up to the	mber	The smallest number up to the			
		Tenths	Hundredths	Thousandths	Tenths	Hundredths	Thousandths	
a	6, 5, 7, 8, 3, 2, 4							
0	8, 3, 0, 7, 4							
C	3, 2, 8, 7, 3, 5, 0, 7							
0	9, 3, 2, 5, 3, 7, 4	,						
e	6, 2, 4, 3							



## Place Value Shuffle Composing and Decomposing Decimals

Learn The value of the digit changes within the number by changing its place:



From above The value of the digit:

- Increases by 10 times ( X 10) as it moves to the left.
- Decreases by 10 times (÷10) as it moves to the right.

Using the place value charts to solve multiplying and dividing by 10 problems

problem: 75.4 x 10

	W	hole N	lumber		oint	Decimals			
Thou	Thousands Ones					nal P			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decir	Tenths	Hundredths	Thousandths
			4	7	5		4		
			7	5	4 4				

The value of 7

increased when multiplying by 10 from

70 to 700

The value of 5The value of 4

increased when multiplying by 10 from

increased when multiplying by 10 from

5 to 50 0.4 to 4

Therefore:

75.4 754

The value of the whole number **75.4** increased when multiplying by **10** from **75.4** to **754**, so  $75.4 \times 10 = 754$ .

## problem: 75.4 ÷ 10 = 7.54

	Whole Number							Decimal	S
Thou	ısand	5	Oı	nes			Decimals  Tenths Hundredths Thousa		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Deci	Tenths	Hundredths	Thousandths
				7	5		4		
-					7		5	4	

The value of []

of 5

decreased when dividing by 10 from

5

to 0.5

The value of

The value of

5

decreased when dividing by 10 from 5 decreased when dividing by 10 from 0.4

0.4 to 0.04 75.4 754

#### Therefore:

The value of the whole number **75.4** decreased by a factor of **10** from **75.4** to **7.54**, so  $75.4 \div 10 = 7.54$ .

#### Notles

- When multiplying by 10 Move all digits of the number one place to the left.
- When dividing by 10
   Move all digits of the number one place to the right.
- 1 Use the place value charts to solve the following problems.

  Fill in the blanks to show how the value of each digit has changed:
  - **a** 386 X 10

	W	hole N	Number		oint		Decimal	S	
Thou	Thousands		Ones E		Ones				
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decir	Tenths	Hundredths	Thousandths

- The value of \_\_\_\_\_ (increased/decreased) when multiplying by 10 from \_\_\_\_ to \_\_\_\_.
- The value of ...... (increased/decreased) when multiplying by 10 from ..... to ..........
- The value of \_\_\_\_ (increased/decreased) when multiplying by 10 from \_\_\_\_ to \_\_\_\_.

#### **6** 2.5 X 10

	W	hole N	lumber			oint	Decimals			
Thou	ısand	S	O	nes		nal Pc				
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decir	Tenths	Hundredths	Thousandths	

#### **9**15 ÷ 10

	W	hole N	lumber			oint	Decimals				
	usand		Ones de la companya d								
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Deci	Tenths	Hundredths	Thousandths		

**6** 8.7 ÷ 10

	W	hole N	lumber		oint	Decimals				
Thousands				Ones						
Hundreds	Tens	Ones	Hundreds Tens Ones		Deci	Tenths	Hundredths	Thousandths		

•	The value of	(increased/decreased)	when	dividing	by	10	from
	to						

- The value of \_\_\_\_\_ (increased/decreased) when dividing by **10** from \_\_\_\_\_ to \_\_\_\_\_.
- Therefore, the value of the whole number \_\_\_\_\_ (increased/decreased) when dividing by 10 from \_\_\_\_\_ to \_\_\_\_, so  $8.7 \div 10 =$  \_\_\_\_\_.

#### 2 Find the result:

#### Decomposing Decimal Numbers in Expanded Forms

Learn Extended form is used to decompose decimals.

Note the following:

$$0.025 = 0.02 + 0.005$$

$$\bigcirc$$
 0.25 = 0.2 + 0.05

**G** 
$$4721.7 = 4,000 + 700 + 20 + 1 + 0.7$$
 **G**  $472.17 = 400 + 70 + 2 + 0.1 + 0.07$ 

$$\bigcirc$$
 47.217 = 40 + 7 + 0.2 + 0.01 + 0.007



Decimals can be decomposed in several ways, as in the following example:

#### 3 Decompose the following numbers:

•	
	<b>a</b> 34.527 =
. (2 <sup>nd</sup> Way)	=
. (3 <sup>rd</sup> Way)	=
. (1st Way: Expanded Form)	<b>6</b> 21.045 =
. (2 <sup>nd</sup> Way)	=,
. (3 <sup>rd</sup> Way)	=
. (1st Way: Expanded Form)	<b>©</b> 14.932 =
. (2 <sup>nd</sup> Way)	=
. (3 <sup>rd</sup> Way)	=
.(1st Way: Expanded Form)	<b>d</b> 231.128 =
. (2 <sup>nd</sup> Way)	=
. (3 <sup>rd</sup> Way)	=
.(1st Way: Expanded Form)	<b>©</b> 508.17 =
. (2 <sup>nd</sup> Way)	
. (3 <sup>rd</sup> Way)	=

#### 4 Compose the following numbers:



#### **Comparing Decimals**

**ample:** Compere between 85.376 and 85.368, using the following steps:

Step

Step

Step

Step /

Compare the whole numbers.

Compare the digits in the Tenths place.

Compare the digits in the Hundredths place.

Compare the digits in the Thousandths place.

85.367

85.368 85.367 If they are equal

85.368 85.367 If they are equal

85.368

85.36<mark>7 < 85.36</mark>8 If they are equal

1 Compare using (<, = or >):

**a** 45.057 45.100

98.013

98.101

**©** 50.009 50.100

**1**0.1

10.011

**e** 12.01 2.099

**1** 34.5

34.500

2 Select the greatest number:

**a** 1.401 , 1.341 , 1.440 , 1.041 **b** 1.055 , 1.3 , 1.28 , 1.045

3 Select the smallest number:

**a** 20.09 , 20.1 , 20.001 , 20.011 **b** 9.003 , 3.009 , 30.09 , 90.03

4 Arrange the following numbers in an ascending order:

45.21 , 54.12 , 45.12 , 54.21 , 51.24

5 Arrange the following numbers in a descending order:

2.011 , 21.010 , 12.001 , 100.12 , 10.012



#### **Rounding Decimals**

#### To the Negrest

#### Whole Number

**Tenth** 

Hundredth Thousandth

Unit

Ones

One decimal place

$$0.1 - \frac{1}{10}$$

$$0.01 - \frac{1}{100}$$

Two decimal places Three decimal places

$$0.001 - \frac{1}{1.000}$$



#### Rounding Strategies

#### The Midpoint Strategy:

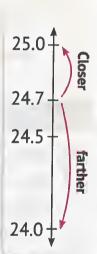
#### xample: Round each of the following numbers:

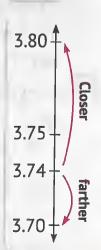
- 24.7 (To the nearest whole number)
  - The number 24.7 is located between the numbers 24.0 and 25.0.
  - The midpoint between the two numbers is 24.5.
  - 24.7 is closer to 25.0.

So,  $24.7 \approx 25$  (To the nearest whole number)

- **5.74** (To the nearest Tenth)
  - The number 3.74 is located between the numbers 3.70 and 3.80.
  - The midpoint between the two numbers is 3.75.
  - 3.74 is closer to 3.70.

So,  $3.74 \approx 3.7$  (To the nearest Tenth)

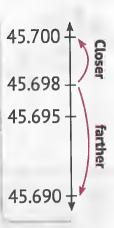




#### © 45.698 (To the nearest Hundredth)

- The number **45.698** is located between the numbers **45.690** and **45.700**.
- The midpoint between the two numbers is 45.695.
- 45.698 is closer to 45.700.

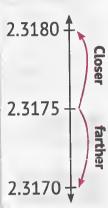
So,  $45.698 \approx 45.70$  (To the nearest Hundredth)



#### @ 2.3175 (To the nearest Thousandth)

- The number 2.3175 is located between the numbers
  2.3170 and 2.3180.
- The midpoint between the two numbers is 2.3175.
- 2.3175 is located at the midpoint.

So,  $2.3175 \approx 2.318$  (To the nearest Thousandth)



#### Second:

#### **Rounding Rule Strategy:**

- 1. Select the digit in the place to be rounded.
- 2. Replace the digits in the places that precede the previously selected digit with zeros.
- 3. Look at the digit in the place preceding the place to be rounded directly.

If this digit is **0, 1, 2, 3**, or **4**, the number of the specified place remains **unchanged**.

If this digit is 5, 6, 7, 8 or 9, we add 1 to the number of the specified place.

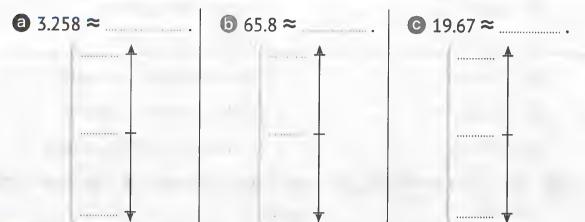
#### **Example:** Round the following numbers to the nearest:

9.675 ≈ 10
(Whole number)

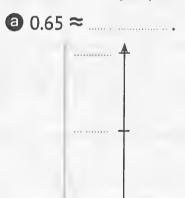
6 . 2  $\neq$ 6 . 2 0
6.24  $\approx$  6.2
(Tenth)

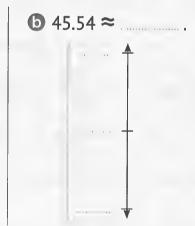
5 6 . 8 3 9 5 6 . 8 4 0 5 6 . 8 4 0 56.839 ≈ 56.84 (Hudredth)

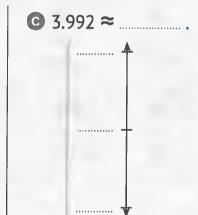
2 . 3 5 6 5 ↓ ↓ ↓ ↓ ↓ ↓ 2 . 3 5 7 0 2.3565 ≈ 2.357 (Thousandth) 1 Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest whole number:



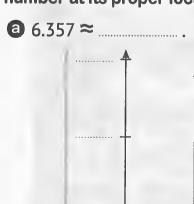
2 Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest Tenth:

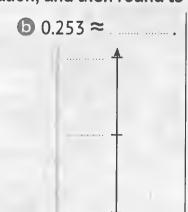


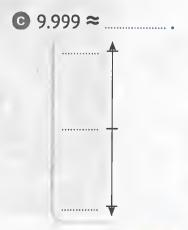




3 Label the midpoint of the number line. Place the given decimal number at its proper location, and then round to the nearest Hundredth:







#### 4 Round each of the following numbers:

a 753.5 ≈ \_\_\_\_\_\_\_. (To the nearest whole number)

**ⓑ**  $56.25 \approx$  \_\_\_\_\_\_. (To the nearest Tenth)

**d**  $782.475 \approx$  (To the nearest Hundredth)

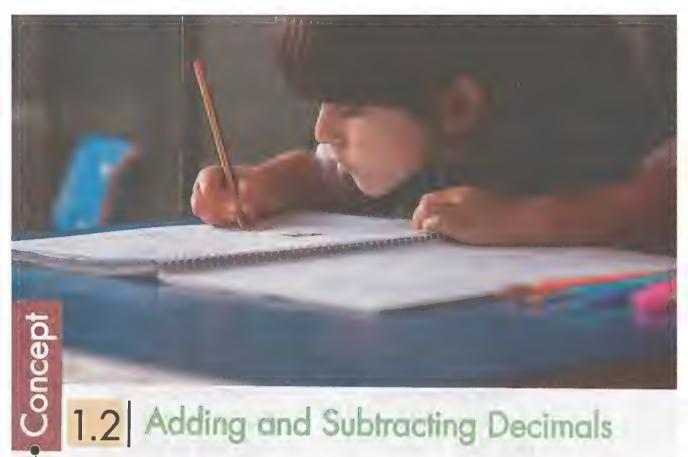
 $\bigcirc$  956.285  $\approx$  \_\_\_\_\_\_. (To the nearest Hundred)

 $\bigcirc$  0.0396  $\approx$  \_\_\_\_\_\_. (To the nearest Thousandth)

5 Fill in the chart as you round each decimal to the stated place value:

	Number	Round to the Nearest Whole Number	Round to the Nearest Tenth	Round to the Nearest Hundredth
а	56.284			
0	572.089			
C	0.896			
0	50.101			





#### Lessons 7-9:

Estimating Decimal Sums Modeling Decimal Addition Thinking Like a Mathematician

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- · Estimate sums of decimal numbers.
- · Model decimal addition.
- Apply strategies to add decimals to the Thousandths place.
- · Check the reasonableness of his/her answers.

#### Lessons 10-13:

Subtracting Decimals
Estimating Decimal Differences
Subtracting to the Thousandths Place
Decimal Story Problems

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- Model decimal subtraction.
- Estimate differences of decimal numbers.
- Apply strategies to subtract decimals to the Thousandths place.
- Check the reasonableness of his/her answers.
- Add and subtract decima, numbers to the Thousandths place to solve story problems.

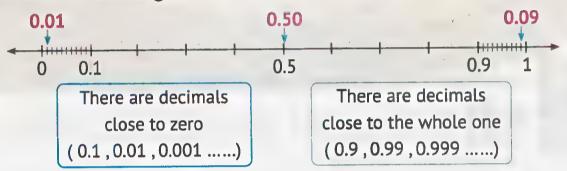


Estimating Decimal Sums Modeling Decimal Addition Thinking Like a Mathematician

#### Learn

#### Easy Numbers

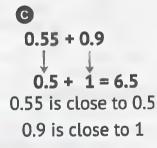
The numbers (0, 0.5, and 1) are benchmark numbers. Note the following number line:



0, 0.5, 1, 1.5, ... are called benchmark numbers.

#### Estimating the Sum of Decimals Using Benchmark Numbers:

The sum of decimals can be estimated using benchmark numbers, as in the following problems:



#### Strategies for Estimating the Sum of Decimals

Front-End Estimation Benchmark Decimals Separate
Wholes
and Parts

Round to the Nearest (One – Tenth – Hundredth) 1 Estimate the sum of the following decimals: (Use the strategy you prefer)

2 Taha has 54.20 LE. His brother has 45.75 LE. They want to combine their money to purchase 4 kilograms of apples for 100 LE. Estimate to see if they have enough money.

***************************************	•••••••••	***************************************	
	***************************************		

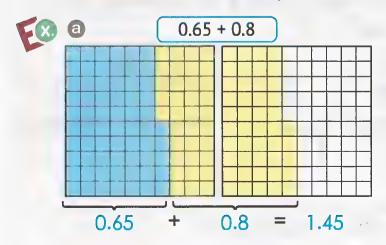
#### Learn

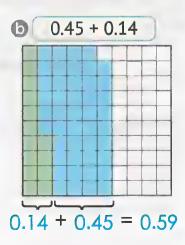
#### **Modeling Decimal Addition**

First.

#### **Adding Decimals Using the Decimal Model:**

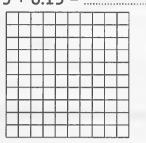
Represent each of the two decimals with different colors, their sum is the number of squares of both colors.



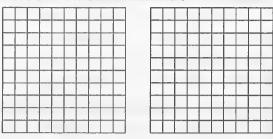


#### 3 Use the following decimal models to find the result:

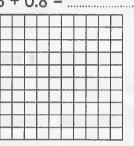
**a** 0.23 + 0.15 = .....



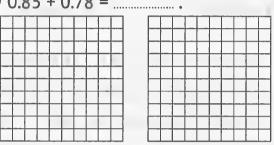
**6** 0.68 + 0.75 = .....



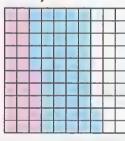
**©** 0.08 + 0.8 = ....

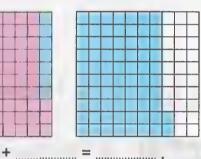


**d** 0.85 + 0.78 = .....



4 Write an expression to match the models. Write an addition problem, and then find the result:





d 1705/57

#### Second: Adding Decimals Using the Place Value Chart:

**(** 

Write the numbers in the place value chart and add.

**Example:** 0.375 + 0.28

	WI	nole N	lumber			oint		Decimal	S
Thousands Ones						mat P			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Deci	Tenths	Hundredths	Thousandths
					0		3	7	5
					0		2	8	
					0		6	5	5

So, 0.375 + 0.28 = 0.655

#### 5 Use the place value chart to find the sum:

**a** 0.8 + 3.09 = .....

	W	nole N	lumber			oint	Decimals			
Thou	Thousands Ones				mat P					
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Deci	Tenths	Hundredths	Thousandths	
				1						

**b** 0.245 + 3.89 = ......

	WI	nole N	lumber	٠.,	oint	Decimals			
Thou	usand	S	Oi	nes	,	nal P	Tal P		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decil	Tenths	Hundredths	Thousandths

**6** 4.028 + 2.83 = .....

	WI	hole N	lumber			oint	Decimals				
Thou	ısand	5	Ones ਵ								
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decin	Tenths	Hundredths	Thousandths		
	  -										

**d** 125.36 + 3.08 = ......

	WI	nole N	lumber			oint	Decimals			
Thou	ısand	5	Oı	nes	s E					
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decin	Tenths	Hundredths	Thousandths	
						٠				



#### **Adding Decimals**



Vertically: Arrange the digits correctly, so that the decimal point is under the decimal point, the Ones under the Ones, and the Hundreds under the Hundreds... and so on, and then add.

345,200 2.893 348.093

(Empty spaces can be filled with zeros)

Horizontally: 345.200 + 2.893 = 248.093

6 Add:

45.368 + 2.758 0.358 + 34.19

**C** 45.98 + 125.3

- **d** 36.89 + 4.5 = \_\_\_\_\_
- 7 Complete: (As in the example)

**25** Thousandths + 6 Hundredths = 85 Thousandths.

Place value: 8 Hundredths, 5 Thousandths.

**a** 3 Thousandths + 4 Thousandths = ...... Thousandths.

Place value: Hundredths, Thousandths.

7 Thousandths + 4 Thousandths = ...... Thousandths.

Place value: Hundredths, ...... Thousandths.

**© 39** Thousandths + **5** Thousandths = ...... Thousandths

**Place value:** Hundredths. Thousandths.

d 3 Hundredths + 99 Thousandths = ...... Thousandths.

Place value: \_\_\_\_ Tenths, \_\_\_\_ Hundredths, \_\_\_\_ Thousandths.

8 Diaa travels from Cairo to Alexandria and stops to rest in Tanta. If the distance between Cairo and Tanta is 92.61 km, and the distance between Tanta and Alexandria is 147.7 km. what is the distance traveled by Diaa?



## Subtracting Decimals - Estimating Decimal Differences - Subtracting to the Thousandths Place - Decimal Story Problems



#### **Modeling Decimal Subtraction**

First

#### **Modeling Decimal Subtraction:**

Represent the greatest decimal fraction on the model, and then remove the squares of the smaller decimal fraction:





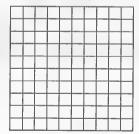
$$1.12 - 0.45 = 0.67$$

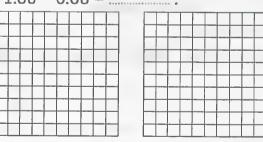
0.32 - 0.12

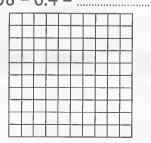


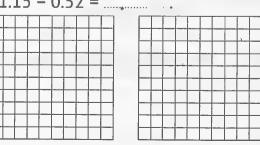
$$0.23 - 0.12 = 0.20$$

1 Use the decimal models to find the result:

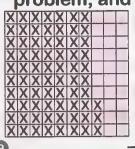


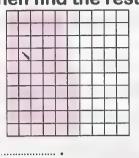


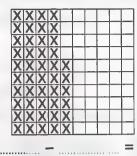




2 Write an expression to match the models. Write a subtraction problem, and then find the result:







#### Second Subtracting Decimals Using the Place Value Chart:

Write the numbers in the place value chart and then subtract.

**Example:** 24.8 – 7.245

	Wi	nole N	lumber			oint	Decimals			
Thousands			Ones			nal P				
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Deci	Tenths	Hundredths	Thousandths	
				2	4		8	0	0	
					7		2	4	5	
				1	7		5	5	5	

So, 24.8 - 7.245 = 17.555

3 Use the place value table to find the difference:

 $\mathbf{a}$  128 - 309 =

Whole Number							Decimals		
Thousands			Or	Ones		oi ci			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	De	Tenths	Hundredths	Thousandths

**b** 9.245 - 0.86 = .....

Whole Number							Decimals		
Thousands		Ones		Poir					
Hundreds	Tens	Ones	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths
						•			

**©** 8.027 – 0.8 = .....

Whole Number							Decimals		
Tho	usands	5	Oı	nes		oi ci			1
Hundreds	Tens	Ones	Hundreds	Tens	Ones	De	Tenths	Hundredths	Thousandths

**d** 142.37 – 4.08 =

Whole Number							Decimals		
Tho	Thousands		Ones		ies ·				
Hundreds	Tens	Ones	Hundreds	Tens	Ones	De	Tenths	Hundredths	Thousandths

#### Learn

#### **Subtracting Decimals**

**Example:** 48.3 – 5.245

Vertically: Arrange the digits correctly, so that the decimal point is under the decimal point, the Ones under the Ones, and the Hundreds under the Hundreds... and so on, and then subtract. (Empty spaces can be filled with zeros)

48.300 5.245 43.055

Horizontally: 48.300 - 5.245 = 43.055

#### Subtract:

#### Learn

#### **Estimating Decimal Differences**

Strategies for Estimating Decimal Differences

Front-End Estimation Benchmark Decimals Separate
Wholes
and Parts

Round to the Nearest

( One – Tenth –

Hundredth )

- 5 Estimate the difference of the following decimals: (Use the strategy you prefer)
  - **a** 8.34 − 3.43 **Estimate:** =
  - **ⓑ** 345.1 − 80.91 **Estimate:** = .....
  - **©** 7.21 − 4.56 **Estimate**: ..... = .....
  - **1** 0.981 − 0.089 **Estimate:** = .....
- 6 Complete: (As in the example)



75 Thousandths – 3 Hundredths = 45 Thousandths.

Place value: 4 Hundredths, 5 Thousandths.

a 45 Thousandths - 12 Thousandths = ..... Thousandths.

Place value: Hundredths, ..... Thousandths.

**5** Hundredths – **13** Thousandths = ...... Thousandths.

Place value: Hundredths, Thousandths.

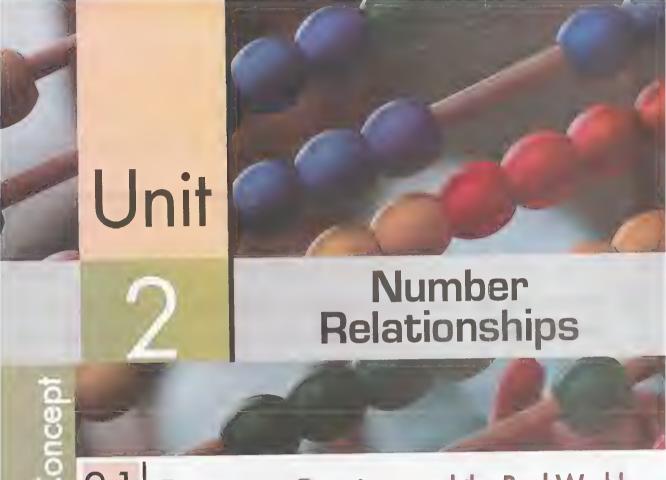
**© 4** Tenths – **75** Thousandths = ...... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

**@ 214** Thousandths – **18** Hundredths = ...... Thousandths.

Place value: Tenths, ...... Hundredths, ..... Thousandths.

7	The width of the Tahya Misr Bridge, which connects northern and eastern Cairo to western Cairo across the Nile River, is 67.3 meters, and the Jiaxing-Shaoxing Sea Bridge in Japan is less in width than the Tahya Misr Bridge by 11.7 meters. How wide is the Jiaxing-Shaoxing Sea Bridge?
8	Rashad and his father went fishing. Each of them caught a giant fish, the mass of the first fish was 53.25 kilograms, and the mass of the other fish reached 46.8 kilograms. What is the mass of the two fish together?
9	The length of the Tahya Misr Bridge is 16.7 km. If Ramy travels along the length of the Tahya Misr Bridge and then returns this distance again, how many kilometers in total does he travel?
10	Sami rides his bike along the Tahya Misr Bridge walkway, which is 16.7 kilometers long and 3.25 kilometers wide. How many kilometers does he still need to ride to reach the end of the bridge?



### 2.1 Expressions, Equations, and the Real World

#### Lesson 1:

#### **Expressions, Equations, and Variables**

#### Learning Objectives:

By the end of this lesson, the student will be able to:

- Explain the difference between expressions and equations.
- Explain why there might be an unknown in an expression or equation.
- Use letters or symbols to represent unknowns in expressions and equations.

#### Lessons 2 - 4:

#### Variables in Equations Finding the Unknown Telling Stories with Numbers

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Apply the relationship between addition and subtraction to find the value of the unknown in an equation.
- Solve equations involving decimal numbers to the Thousandths place.
- Write equations to represent story problems with unknown quantities.
- Write story problems involving addition and subtraction of decimal numbers.
- Solve equations involving decimal numbers to the Thousandths place.





## Expressions, Equations, and Variables

#### Remember

Variable	Expression	Equation
It's a letter or symbol	It's a set of fixed	It's a mathematical sentence
that represents the	numbers and	that includes an equal
unknown value in	variables that line up	relationship between two
an equation.	next to each other.	mathematical expressions.
<b>Such as:</b> x, y, z,	<b>Such as:</b> x + 5, 3 X y	<b>Such as:</b> $5 + x = 9, y = 5 \times 3$

1 Put a tick ( ) to classify the following mathematical sentences into "Equation" or Mathematical Expression" or "Other":

		Equation	Mathematical Expression	Other
a	4.7 + 3.6 = M			
6	6.4 + 3.2 + 8			
G	56 - x = 47.5			
0	3.4 + L			
е	Aya ran 8 km last week.			
•	3.5 + 2.456 = 2.5 + 3.456			
9	37.125 – 13.7			
0	Amir had 3.5 kg of apples.			

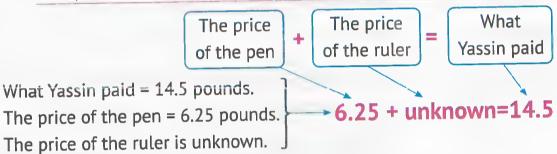
#### Learn

## Using Letters or Symbols to Represent Unknown Values in Mathematical Expressions and Equations

#### Example:

Yassin bought a pen and a ruler. He paid 14.5 pounds for them. If the price of the pen is 6.25 pounds, what is the price of the ruler? Write an equation to represent the price of the ruler.

The previous example can be expressed as follows:



- Replace the word unknown with one of the letters (a variable) "y".
- So, the equation that represents the price of the ruler is: 6.25 + y = 14.5 or y = 14.5 6.25
- 2 Read the following story problems. Make an equation for each problem:
  - Ahmed had 25.15 pounds, and he bought a toy for 14.5 pounds.
    How many pounds does Ahmed have left?
  - A class in a school has 45 students. 28 of them are girls. How many boys are there in this class?
  - **G** A farm had **4,200** chickens. **3,350** chickens were sold in a week. How many chickens are left on the farm?
  - Ahmed bought a car for 90,990 pounds and bought a house for his family for 750,250 pounds.
    How much did Ahmed spend to buy the car and the house?



#### Variables in Equations Finding the Unknown Telling Stories with Numbers

#### Learn

#### Determining the Value of the Unknown

You can use mental math to determine the value of the (unknown) variable in the equation.

#### xample: Find the value of (a) in each of the following:

$$a = 7.75 - 2.5 = 5.25$$

$$a = 12.7 - 9.7 = 3$$

#### 1 Use mental math to estimate the equations, and then solve them:

**a** 
$$8.235 + p = 10.224$$

**b** 
$$t - 2.445 = 0.26$$

$$\Theta$$
 6.82 -h = 1.023

$$\mathbf{6}$$
 v + 42 809 = 100 01

**d** 
$$\mathbf{v} + 42.809 = 100.01$$

$$\bigcirc$$
 5.52 + 2.041 +  $\mathbf{m}$  = 9.271

$$6 5.52 + 2.041 + m = 9.271$$

**6** 
$$2.377 + 3.1 = 1.52 + a$$

### Remember

# Part-to-Whole Bar Model

Bar model: is a schematic diagram that represents the relationship between the whole and the part.



example: From the following bar models, we conclude that:



a = 10 - 2.5



y = 7.5 + 2.5



m = 10 - 7.5

- Write an equation to represent each story problem using (n) as the variable, and find its value. Use the bar models.
  - a Bassem takes the bus from Cairo to Tanta. The distance is 92.7 km. The bus stops 53.5 km away in the city of Banha to take more passengers.

How far is Banha from Tanta?

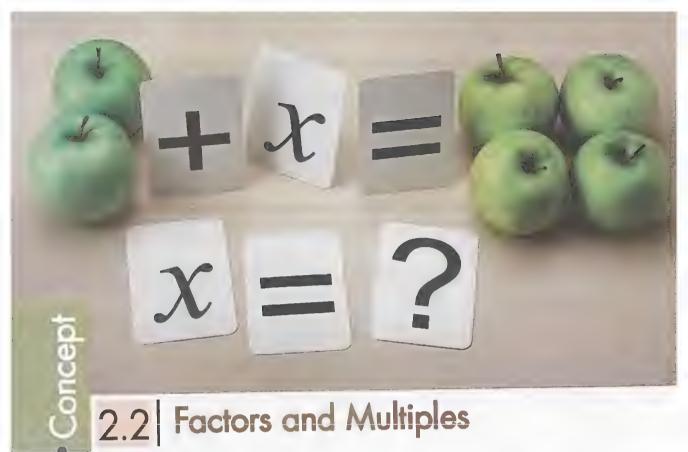
Bar Model

Bassem and his friend Jana were taking a snorkel. He saw a turtle whose length is 0.78 m. Jana saw another turtle, 0.58 m longer than the first one. How tall is the turtle that Jana saw?

Bar Model

Dai Flodet

In Jana's backpack, she has a	bottle of mass 1.5 kg, books of mass 2.51
<b>kg</b> and a snack. Her full backp	
What is the mass of the snack	——————————————————————————————————————
	Bar Model
3 Write a story problem ren	resenting each equation, and then
solve it:	resenting each equation, and then
<b>a</b> $\mathbf{x} + 2.75 = 12.5$	
<b>b</b> $34.750 - s = 15.25$	



Lessons 5&6:

Finding Factors
Prime Factorization

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain the meaning of factors.
- · Identify the factors of a given number.
- Use a factor tree to identify the prime factors of a given number.

#### Lesson 7:

**Greatest Common Factors (GCF)** 

#### Learning Objectives:

By the end of this lesson, the student will be able to:

- Use factor trees to identify common factors of two whole numbers.
- Use factor trees to identify the greatest common factor of two whole numbers.

### Lessons 8&9:

Identifying Multiples
Least Common Multiple (LCM)

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- Explain the meaning of multiples.
- Identify common multiples of two whole numbers up to 12.
- Explain the meaning of least common multiple.
- Identify the least common multiple of two whole numbers up to 12.

### Lesson 10:

**Factors or Multiples?** 

### Learning Objectives:

By the end of this lesson, the student will be able to:

- Explain the difference between factors and multiples.
- Identify the greatest common factor and least common multiple of two given numbers.





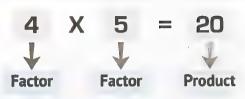
# Finding Factors Prime Factorization

### Remember

### **Factors**

Factors are the numbers that are multiplied to form a product.

Or the factor of a number divides the number equally without a remainder.



# Methods for Finding the Factors of a Number

Factor T-chart	Factor Rainbow	Factor Tree
18 1 18 2 9 ) 3 6	18	18 1 2 3 6 9 18

- 2 is a factor of all even numbers,
   whose Ones digit is 0, 2, 4, 6, or 8.
- 3 is a factor of numbers, whose sum of digits is divisible by 3 without a remainder.
- 5 is a factor of numbers, whose Ones digit is 0 or 5.
- Prime number: is a number greater than one and has only two factors, one and the number itself.
- All prime numbers are odd, except 2 The smallest prime number is 2.
- The only even prime number is 2 The smallest odd prime number is 3.
- 1 is neither a prime number nor a composite number.
- Prime numbers less than 100 are:

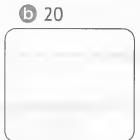
### 1 Fill in the missing factors represented by the variables:

**a** 
$$4 \times m = 16$$

2 Find the factors of each of the following numbers using the method you prefer:

a 16

The factors of **16** are:



The factors of **20** are:



The factors of **36** are:



The factors of **48** are:

# Learn

### **Prime Factors**

### Prime Factorization:

It means writing the composite number as the product of prime numbers.



 $8 = 2 \times 2 \times 2$  ,  $12 = 3 \times 2 \times 2$  ,  $15 = 3 \times 5$ 

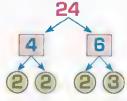
# Prime Factorization Using a Factor Tree

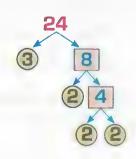


# Factorize 24 into its prime factors:

- 1 Choose two numbers whose **product** is 24 (1 should not be used).
- 2 Circle the prime numbers and leave them, then continue factorizing the composite numbers.
- 3 Stop when all numbers become prime numbers.

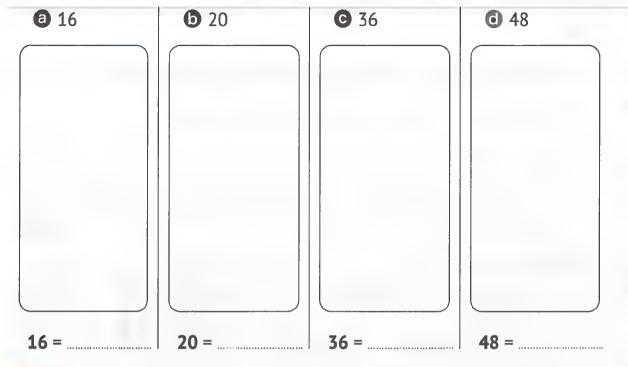
Note that: all of the following are true, and we get the same result:







3 Factorize each number into its prime factors using the factor tree:



4 Find the product of the prime factorization listed. Then, list all other factors of the product:

<b>a</b> 2 x 2 x 5	<b>9</b> 2 X 3 X /	<b>9</b> 2 X 2 X 2 X 7
	'	•



# **Greatest Common Factors (GCF)**



### **Methods for Factorizing Numbers into their Prime Factors**

# **Example:** Factorize 30 into its prime factors:

### 1 Factor Tree:

- Choose two numbers whose product is 30.
- Complete the factorization as in the previous lesson.

$$30 = 2 \times 3 \times 5$$

## 2 Repeated Division:

- Divide by one of the prime factors of a number.
- Keep dividing by another prime factors.
- Stop when the quotient becomes **1**.

$$30 = 2 \times 3 \times 5$$

30 -> 3	) Serv	30	3
10 - 2	Numbers	10	2
5 -5	Prime	5	5
1		1	
,		· ·	

30

# Learn

Determining the Greatest Common Factor of Two Numbers Using Prime Factors

# example: Find the GCF for 24 and 36.

- Factorize both numbers into their prime factors.
- Write the prime factors of both numbers, so that the similar factors are on top of each other.

- For every two same factors, we get a factor.
- The product of these factors is the **greatest common factor**. **So**, the GCF for 36 and 24 is **12**.

# 1 Find the GCF for each of the following:

**a** 28, 42

28 = .....

42 = .....

GCF = \_\_\_\_\_\_ = \_\_\_\_.

**18,27** 

18 = .....

27 = .....

GCF = .....

**G** 12, 20

12 = .....

20 = .....

GCF = \_\_\_\_\_\_ = \_\_\_\_

**16,32** 

16 =

32 = .....

GCF = .....

2 There are 15 boys and 20 girls in a classroom. The teacher wants to divide the class into the greatest equal groups, so that the numbers of boys and girls are equal in all groups.

(Use the greatest common factor)



# 

### Remember

### Multiple of a number:

It is the product we get when we multiply a certain number by another number.

# How to Find the Multiples of a Number

Count by Jumping on the Number Line

Use the Hundred Chart

Use Multiplication Facts

- Zero (0) is the common multiple of all numbers.
- All numbers are multiples of 1.
   Multiples of numbers are infinite.
- Each number is a multiple of itself.
- The product of any two numbers is a common multiple of them.

For example:  $35 = 5 \times 7$ , so 35 is a common multiple of 7 and 5.

# Example (1): Find the common multiples of 3 and 4.

- The multiples of 3 are: 0,3,6,9,12,15,18,21,24,......
- The multiples of 4 are: 0, 4, 8, 12, 16, 20, 24, 28, 32, ......
- Common multiples are: 0, 12, 24,... (Other answers are available)

# Example (2): Find the common multiples of 4, 6, and 8.

- The multiples of 4 are: 0,4,8,12,16,20,24,28,32,36,40,44,48....
- The multiples of 6 are: 0 , 6 , 12 , 18 , 24 , 30 , 36 , 42 , 48 ...
- The multiples of 8 are: 0 , 8 , 16 , 24 , 32 , 40 , 48 ,...
- Common multiples are: 0 , 24 , 48,... (Other answers are available)



1	Mention the first 10 multiples of 2:
	Mention the first 5 multiples of 5:
	Mention the common multiples of 2 and 5 from those you mentioned:
2	<ul> <li>a Mention the first 10 multiples of 3:</li> <li>b Mention the first 6 multiples of 6:</li> <li>c Mention the first 3 multiples of 9:</li> <li>d Mention the common multiples of the numbers 3, 6 and 9 from those</li> </ul>

# Learn

# Least Common Multiple (LCM)

It is the smallest common multiple of two or more numbers with the exception of zero (0).

# Example: Find the LCM of 6 and 8:

you mentioned:

• The multiples of 6 are: 0, 6, 12, 18, 24, 30, 36, 42, 48, ......

• The multiples of 8 are: 0, 8, 16, 24, 32, 40, 48, 56, 64, ......

• Common multiples are: 0 , 24 , 48 ,... (Other answers are available)

The least common multiple of the two numbers (LCM) is 24

### Learn

Determining the Least Common Multiple of Two Numbers Using Prime Factors

# xample: Find the LCM for 12 and 8.

- Factorize the two numbers into their **prime factors**.
- Write the prime factors of the two numbers, so that the similar factors are on top of each other.
- For every two same factors, we get a common factor.
- We also write dissimilar factors.
- The product of these factors is the least common multiple.
   So, the LCM of 8 and 12 is 24.

### 3 Find the GCF and LCM for each of:

**a** 6,9

**(b)** 10, 15

**G** 4, 8

**1**2,9

# No tes

- The least common multiple of two prime numbers is their product.
- If one of the two numbers is a factor of the other number, then the larger number is the least common multiple of the two numbers.





# Factors or Multiples?

# The Difference Between Factors and Multiples

### **Factors**

### Factors of a number

Are all pairs whose products are multiplied together to give this number.

- Not all numbers have the same number of factors.
- When a number is divided evenly, it is divided into factors.
- One of the factors can be obtained by dividing the multiple by the other factor.

### Multiples

Multiples of a number Are the setting that appears when jumping by the same number, starting from zero.

- All numbers have an infinite number of multiples.
- The multiplier is the product of two factors.
- Multiples can be found by multiplying the factors.

# Story Problems

### **GCF**

Usually involves breaking or cutting things into pieces or separating them into multiple groups.

### LCM

Usually involves repetition, or two things happening at the same time.

# Note the following two examples:

# ample (1):

Omnia has two strips of cloth. One is 35 cm wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?

(In this example, Omnia wants to divide the cloth into pieces,

so we use the GCF in the solution)

**Solution:**  $35 = 5 \times 7$ 

 $75 = 5 \times 5 \times 3$ 

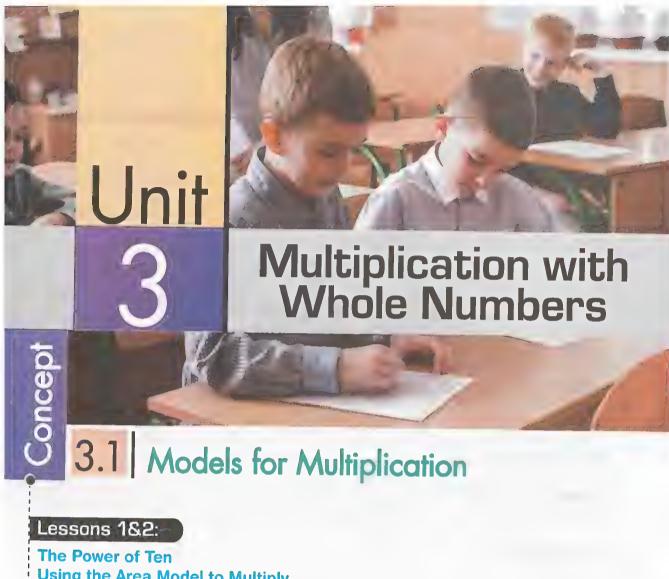
GCF = 5

The largest width of the strips = 5 cm.

<b>E</b> xamp	le (2):
days, l	ned trains to walk every 7 days and lift weights every 4 ne did both today. After how many days will Mohamed walk
	t weights on the same day?  n this example, there is a repetition of what Mohamed does,  so we use the LCM in the solution)
Solutio	n: Multiples of 7: 0, 7, 14, 21, 28, 35, 42,
	ds exercised together today. How many days will it be unti exercise together again?
2 Mala her f She pers	k baked 30 servings of cakes and 48 servings of baklava fo amily. wants to divide the desserts into containers, so that eacl on receives the same number of servings. How man
2 Mala her f She pers	k baked 30 servings of cakes and 48 servings of baklava fo amily. wants to divide the desserts into containers, so that eacl
2 Mala her f She pers cont	k baked 30 servings of cakes and 48 servings of baklava fo amily. wants to divide the desserts into containers, so that eacl on receives the same number of servings. How man

**G** 2, 1

**3** 8, 4



**Using the Area Model to Multiply** 

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Identify powers of ten.
- Multiply single digits by powers of ten.
- Explain the patterns he/she observes observe when multiplying by powers of ten.
- Multiply using the area model.

### Lessons 3&4:

The Distributive Property of Multiplication **Using the Partial Products Model to Multiply** 

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain the relationship between the area model of multiplication and the Distributive Property of Multiplication.
- Multiply using the partial products model.
- Estimate products.



# The Power of Ten Using the Area Model to Multiply

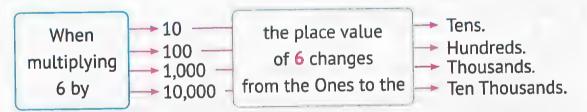
### Remember

### Multiplying by 10, 100, 1,000, ......

### Note the following examples:

	Thou	sands	O	Ones		Decimal	Tenths	
	Tens	Ones	Hundreds	Tens	Ones	Point	ienuis	
					6	•		
6 X 1 <u>0</u> = 6 <u>0</u>				6	0	ø		X10
6 X 1 <u>00</u> = 6 <u>00</u>			6	0	0	ъ		X 1,00
6 X 1,000 = 6,000		6	0	0	0	٠		X 1,000
6 X 1 <u>0,000</u> = 6 <u>0,000</u>	6	0	0	0	0	•		X 10,000

### We note that:



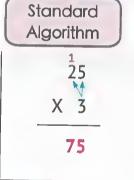
# 1 Complete the following:

# 2 Answer the following:

- a A crate of mangoes weighs 9 kilograms. How many kilograms would 1,000 crates weigh?
- If 10 millimeters make 1 centimeter, how many millimeters are in 7 centimeters?
- There are 1,000 milliliters in 1 liter. Omar bought a 2-liter bottle of juice. How many milliliters are in this bottle?

### Remember

# The product of 25 X 3 can be found in different ways



ra	rtial
Proc	ducts

	20	3		
	3 X 20	5 X 3		
,	= 60	= 15		
	60 + 1	5 = <b>75</b>		

# **Example (1):** 45 X 38

		3	8
	X	30	8
AS	40	1,200	320
45	5	150	40

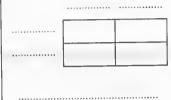
# **Example (2):** 45 X 38

			<del>- 427</del>	
	X	400	20	7
69	60	24,000	1,200	420
1	9	3,600	180	63

# 3 Multiply using the area model:

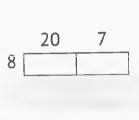
a 4 X 247 = .....

6	62	X	36	=	 	

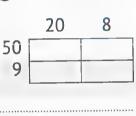


Write the multiplication problem that expresses each model, and then solve it:

a



6



C

300	)	6

- 5 Answer the following
  - a Ali walks 6 kilometers each day. If he walked 187 days a year, how many kilometers would he walk?

What if Ali were to drive 60 kilometers each day? How many kilometers would he drive in 105 days?



# The Distributive Property of Multiplication Using the Partial Products Model to Multiply

### Remember

# **Multiplication Strategies**

The Distributive Property of Multiplication:

xample (1): 45 X 38

$$45 \times 38 = (40 + 5) \times (30 + 8)$$

$$= (40 \times 30) + (40 \times 8) + (5 \times 30) + (5 \times 8)$$

$$= 1,200 + 320 + 150 + 40 = 1,710$$

**Example (2):** 69 X 427

$$69 \times 427 = (60 + 9) \times (400 + 20 + 7)$$

$$= (60 \times 400) + (60 \times 20) + (60 \times 7) + (9 \times 400) + (9 \times 20) + (9 \times 7)$$

$$= 24,000 + 1,200 + 420 + 3,600 + 180 + 63$$

$$= 29,463$$

1 Complete the following:

THEME	At and and Operations
HEME	Number Sense and Operations

## Learn

# Flexible Numbers

Note that when multiplying the two numbers 83 X 14, 83 and 14 can be divided using more than one method.

# **Examples**:

$$800 + 320 + 30 + 12 = 1,162$$

**a** 83 
$$\times$$
 14 = (80 + 3)  $\times$  (10 + 4) **b** 83  $\times$  14 = (40 + 40 + 3)  $\times$  (10 + 4)

	10	4
40	400	160
40	400	160
3	30	12

**6** 
$$83 \times 14 = (50 + 30 + 3) \times (7 + 7)$$

	7	7
50	350	350
30	210	210
3	21	21

$$350 + 350 + 210 + 210 + 21 + 121 = 1,162$$

From the above, we find that all methods of dividing numbers lead to the same result.

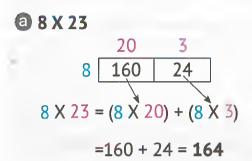
2 Use the area model to find the result of (74 x 12).

Divide the numbers in three different ways:

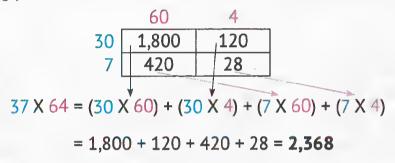
	<u> </u>

# The Relationship Between the Area Model of Multiplication and the Distributive Property of Multiplication

Note the following examples:



### **©** 37 X 64



### 3 Complete using the area model:

	70	3
20	1,400	60
6	420	18

## 4 Complete the area model and find the product:

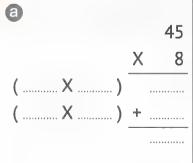
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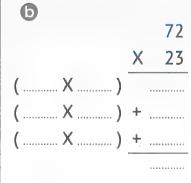
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### Learn

# Using the Partial Products Model to Multiply

# 5 Find the product using the partial products strategy:





C			
			218
		X	37
(X	)		
(X	)	+	**********
(X	)	+	
(X	)	+	
(X	)	+	*********
(X	. )	+	



3.2 Multiplying 4-Digit Numbers by 2-Digit Numbers

Lessons 5 - 7

What Is an Algorithm?
Multiplying Multi-Digit Numbers
Multiplication Problems in the Real World

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- · Multiply using the standard algorithm.
- Multiply 4-digit numbers by 2-digit numbers using the standard algorithm.
- Use estimation to check the reasonableness of his/her answers.
- Solve multistep story problems involving multiplication.



What Is an Algorithm?
Multiplying Multi-Digit Numbers
Multiplication Problems in the Real World

# Learn

# Standard Algorithm for Multiplication

Rample: Multiply: 45 X 23

3 X 45 = 135

Multiply the Tens digit (2) by 45.

20 X 45 = 900

+ 900

Add the products. 45

X 23

135

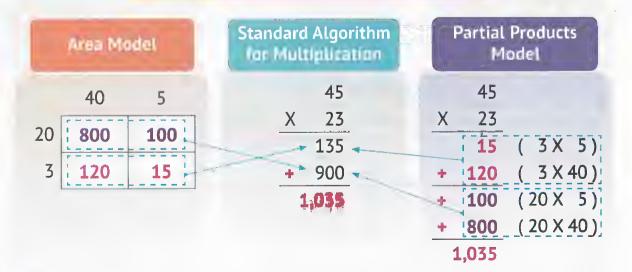
+ 900

1,035

135 + 900 = 1,035

### Learn

# **Comparing Multiplication Models**



# Find the product using the standard algorithm for multiplication:

a		78	<b>b</b>	63	C	92	d	46
	X	26		X 37	>	( 19	×	<b>53</b>
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
	т				_	***************************************	+	***************************************

## earn

# Multiplying 4-Digit Numbers by 2-Digit Numbers

ample: Multiply: 4,275 X 46

### Area Model

### Standard Algorithm for Multiplication

### Partial Products Madel

	4,275
Χ	46
	25,650
+ 1	71,000
1	96.650

				4,275
			X	46
(6	X	5)		30
(6	X	70)	+	420
(6	X	200)	+	1,200
(6	X	4,000)	+	24,000
(40	X	5)		200
(40	X	70)		2,800
(40	X	200)		8,000
(40	X	4,000)	1	60,000
			1	196,650

# Find the product using the standard algorithm for multiplication:

a	4,206				
	_X	72			
	+				

6		1,729
	X	56
		*************
	+	

C	(	6,008
	Χ	93
	+	**************
	******	

# 3 Find the product using the area model:

<b>a</b>	9,472	X	53	
	=			

	9,000	400	70	2
50				
3				
>***				******

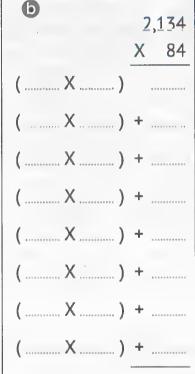
<b>b</b>	6,025	X 37	
	=		

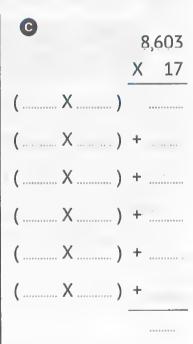
	6,000	20	5
30			
7		,	

	7,000	8
20		:
8		

# 4 Find the product using the partial products model:

а			3	,457
			X	52
(	X	)		e2>344+4+4+
(	X	)	+	
(	X	)	+	0000000000000
(	X	)	+	
(	X	)	+	4000>9000
(	X	)	+	£ = 4 + + 4   5   6   8   8
(	X	)	+	00000000000000
(	X	)	+	*********





6	3,425 X 49
	Estimate:
	Actual product:
	The strategy used:
G	7,008 X 36
	Estimate:
	Actual product:
	The strategy used:
6	answer the following:
	In March, she sold <b>753</b> kebabs. She makes each kebab with <b>83</b> grams of meat. How many grams of meat did she use in February and March?
6	Mona's son, Wael, makes baklava to sell at his family's restaurant. His recipe calls for 170 grams each of pistachios, walnuts, and hazelnuts. In order to make enough for the customers, he needs to multiply his recipe by 18. How many total grams of nuts will he need?
C	For Wael's baklava syrup, he needs <b>250</b> milliliters of honey, <b>15</b> mL of orange extract, and <b>30</b> mL of lemon juice per recipe. How many total



# Mathematical Operations and Algebraic Thinking



# Units of the Theme



# Division with Whole Numbers

Concept 4.1: Models for Division

Concept 4.2: Dividing by 2-Digit Divisors



# Multiplication and Division with Decimals

Concept 5.1: Multiplying Decimals

Concept 5.2: Dividing Decimals



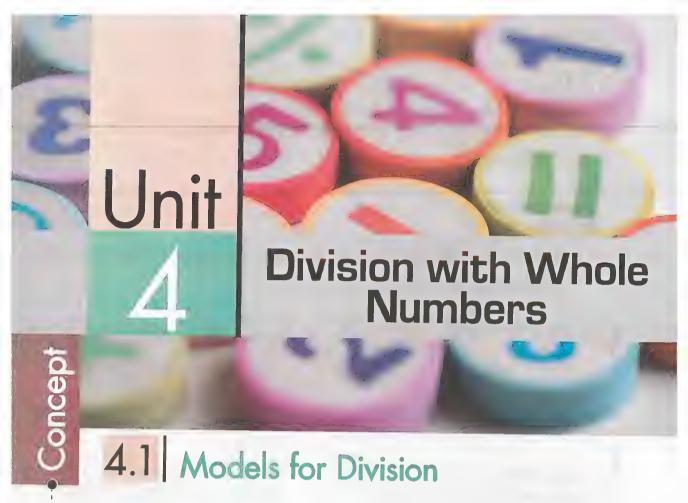
# Numerical Expressions and Patterns

Concept 6.1: Evaluating Numerical

**Expressions** 

Concept 6.2: Analyzing Numerical

Patterns



### Lessons 1&2:

# **Understanding Division Using the Area Model to Divide**

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Use story problems to explain the meaning of division problems.
- Use the area model to solve division problems.

### Lessons 3&4:

# Using the Partial Quotients Model to Divide Estimating Quotients

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the partial quotients model to solve division problems.
- Use estimation to check the reasonableness of his/her answers.



# **Understanding Division** Using the Area Model to Divide

### Remember

Division: It means dividing a certain quantity into equal groups, which is the opposite of multiplication.

(R 3)

Because: 4 X 9 = 36

Dividend

Divisor

**Ouotient** 

Remainder

# Here are three word problems to be read carefully:

There are 72 students at the playground. We need to divide the students into teams, so that each team includes 9 students. How many teams can be formed?

Solution:

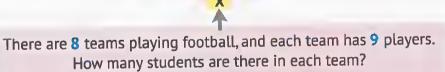
 $72 \div 9 = 8 \text{ teams.}$ 

There are 72 students at the playground. We need to divide the students into 8 teams.

How many students are there in each team?

Solution:

 $2 \div 8 = 9$  students.



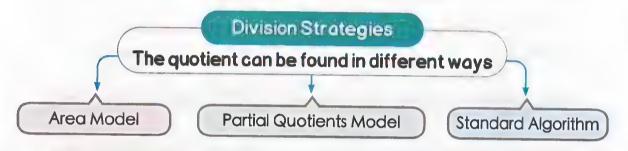
Solution:  $8 \times 9 = 72$  students.

### From the above, we note that:

- The numbers are the same, and the problems are all about equal teams. However, you can use different operations to solve each of these problems.
- Multiplication: things are already in equal groups.
- Division: things must be divided into equal groups.

## 1 Answer the following:

- a If 18 plums are divided equally into 3 bags, then how many plums will be in each bag?
- **b** 18 plums are packed in bags. If each 3 plums are put in a bag, how many bags are there?
- G If each bag contains 6 plums, and we have 3 bags, how many plums are there?



### Remember

# Using the Area Model to Divide

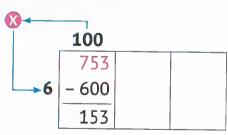
Example: Divide: 753 ÷ 6

Draw a rectangle and write the divisor (6) on the left side of the rectangle.

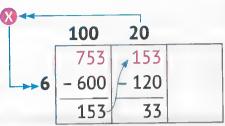
The quotient will be between 200 and 300.

- (1) We look for a multiple of 6, close to 753.
  - We find that 600 is a multiple of 6; because 600 = 6 X 100.
  - We write 100 over one part of the rectangle,

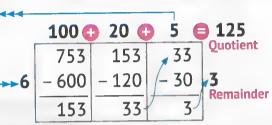
and we write 753 - 600 = 153 inside it.



- (2) We look for a multiple of 6, close to 153.
  - We find that 120 is a multiple of 6;because 120 = 6 X 20.
  - We write 20 over another part of the rectangle, and we write
    153 120 = 33 inside it.



- (3) We look for a multiple of 6, close to 33.
  - We find that 30 is a multiple of 6;
     because 30 = 6 X 5.
  - We write 5 over another part of the rectangle, and we write 33 30 = 3
     inside it.



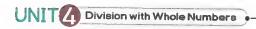
The remainder (3) is less than the divisor (6), so the division process is completed.

To find the quotient, we add the numbers above the rectangle:

$$100 + 20 + 5 = 125$$

Note that There is more than one way to use the area model to solve division problems, as in the following:

$$753 \div 6 = 125 (R 3)$$



# 2 Divide using the area model:

 3 763 ÷ 5
 6 4,527 ÷ 9
 6 6,820 ÷ 5

# Learn

# Dividing by a Two-Digit Number Using the Area Model

# **Example:** Divide: 1,625 ÷ 13

We follow the same steps for dividing by a one-digit number:

- (1) We look for a multiple of 13, close to the divisor 1,625.
- (2) We find that  $100 \times 13 = 1,300$ .
- (3) We write 100 over one part of the rectangle,and we write1,625 1,300 = 325 inside it.
- 100 **10 10 10** Ouotient 325 1.625 195 65 - 1,300 \/- 130 \/- 130 6 - 65 **-0** Remainder 325 195 65  $1,625 \div 13 = 125$

**Another Solution** 

• We repeat the same steps with the rest of the number.

There is more than one way to use the area model to solve division problems, as in the following example:

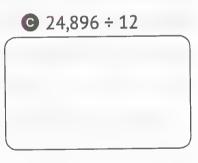
ample: -

Divide: 10,454 ÷ 24

**Another Solution** 

100	100	100	100	10	10	10	5	435
10,454	8,054	5,654	3,254	854	614	374	134	
- 2,400	- 2,400	- 2,400	- 2,400	- 240	- 240	- 240	- 120	
8,054	5,654	3,254	854	614	374	134	14	

3 Divide using the area model:



4 Complete the area model, then find the quotient:

	7,776	1,376	96
32	- 6,400	- 1,280	- 96
	1,376	96	14

	100	10	2	2
	9,234	********		******
81				 
	**********		********	





# **Using the Partial Quotients Model to Divide Estimating Quotients**

### Remember

# Using the Partial Quotients Model to Divide

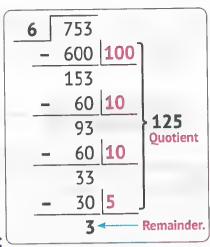
- (1) We write the division process as shown.
- (2) We look for a multiple of 6, close to 753.
  - We find that 600 is a multiple of 6;
     because 600 = 6 X 100.
  - We write 100 on the right,and subtract 753 600 = 153.
- (3) We look for a multiple of 6, close to 153.
  - We find that 120 is a multiple of 6;
     because 120 = 6 X 20.
  - We write 20 on the right and subtract
     153 120 = 33.
- (4) We look for a multiple of 6, close to 33.
  - We find that 30 is a multiple of 6;because 30 = 6 X 5.
  - We write 5 on the right and subtract 33 30 = 3.

- The remaining number (3) is less than the divisor (6).
   Thus, the division process is completed.
- To find the quotient, we add the numbers on the right: 100 + 20 + 5 = 125.

$$S_0,753 \div 6 = 125 (R 3)$$

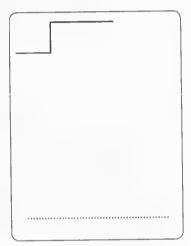
to use the partial quotients model to solve division problems.

So, 
$$753 \div 6 = 125 (R 3)$$



1 Divide using the partial quotients model:

- a 772 ÷ 4
- **6** 2,367 ÷ 5
- **©** 8,314 ÷ 6



## Learn

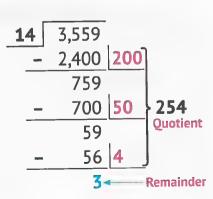
Dividing by a Two-Digit Number Using the Partial Quotients Model

**Example:** Divide: 3,559 ÷ 14

We follow the same steps for dividing by a one-digit number:

- We look for a multiple of 14, close to the divisor 3,559.
  - We find that 200 X 14 = 2,800.
  - We write 200 on the right and subtract 3,559 2,800 = 759.
  - We repeat the same steps with the rest of the number.

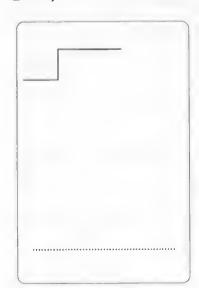
$$S_0$$
, 3,559 ÷ 14 = 254 (R 3)

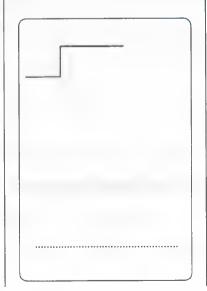


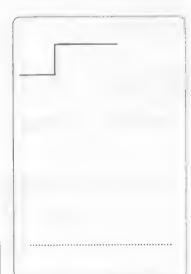
There is more than one way to use the partial quotients model to solve division problems, as in the following example.

**Example:** Divide: 16,884 ÷ 42

2 Divide using the partial quotients model:







### 3 Complete each partial quotients model, then find the quotient:

Remainder =



#### **Estimating Quotients:**

• We use estimation when we want to get an answer close to the actual result.

#### To estimate the quotient, we use compatible numbers:

 The estimate is close to the actual product when both numbers are close to the two rounded numbers, or when the two numbers are rounded in the same direction.





12,192÷ 24 = 508 and the estimate is 10,000 ÷ 20 = 500

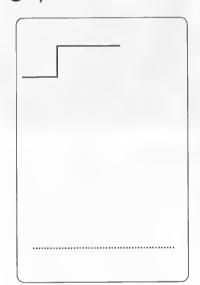
• The estimate is far from the actual result when a number is rounded **up** and another number is rounded **down**.



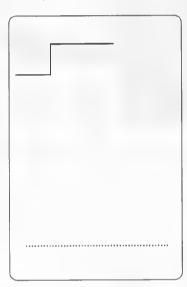
**27,032 ÷ 62 = 436** and the estimate is 30,000 ÷ 60 = 500

4 Estimate the quotient, then find the actual result. Use the strategy you prefer:

**a** 7,800 ÷ 24



 **6** 27,232 ÷ 53



 **G** 6,648 ÷ 12

 	 	******



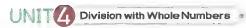
#### Lessons 5-7:

Using the Standard Algorithm to Divide Checking Division with Multiplication Multistep Story Problems

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- Use the standard algorithm to divide by a 2-digit divisor.
- Use multiplication to check answers to division problems.
- Solve multistep story problems involving whole numbers and the four operations.





# Using the Standard Algorithm to Divide Checking Division with Multiplication Multistep Story Problems

#### Remember

### Using the Standard Algorithm to Divide

Example: Divide: 891 ÷ 3

The steps of the division process:







#### Third Step: Subtract

#### Fourth Step: Drop the next digi

#### • We repeat the same steps

So, 
$$891 \div 3 = 297$$

Multiplication and division are inverse operations, so we can use multiplication to check the result of division.

#### From the previous example:

297 X 3 = 891, where the product of multiplication is equal to the divisor, so the quotient is true.



Divide: 859 ÷ 8

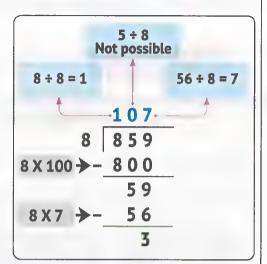
#### (Using the standard division algorithm)

• Note that: When dividing 5 ÷ 8, division is **not possible** because 5 < 8.



We put 0 over the digit 5, and we divide 5 and 9 together: 59 ÷ 8.

$$859 \div 8 = 107 (R 3)$$



#### Learn

### Dividing by a Two-Digit Number Using the Standard Division Algorithm

Create a multiplication table for the divisor to help you:

#### Starting from the left, we find that:

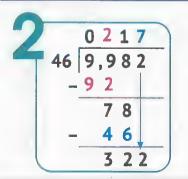
 $9 \le 46$ , so we divide  $99 \div 64$ .

With the help of the previous table, we find that:

The nearest multiple of 46 to 99 is  $46 \times 2 = 92$ .

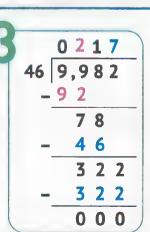


0217



So:  $9.982 \div 46 = 217$ 

Check:  $217 \times 46 = 9.982$ 



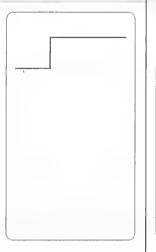
### Divide using the standard division algorithm:

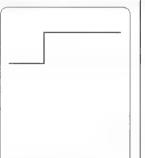
**a** 7,85 ÷ 5

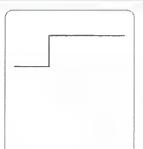
**b** 2,598 ÷ 4

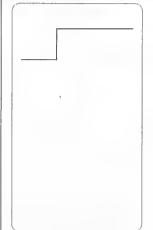
**©** 3,565 ÷ 3

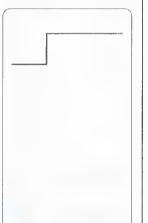
 $\bigcirc$  9,628 ÷ 8

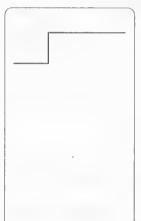


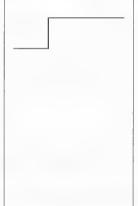








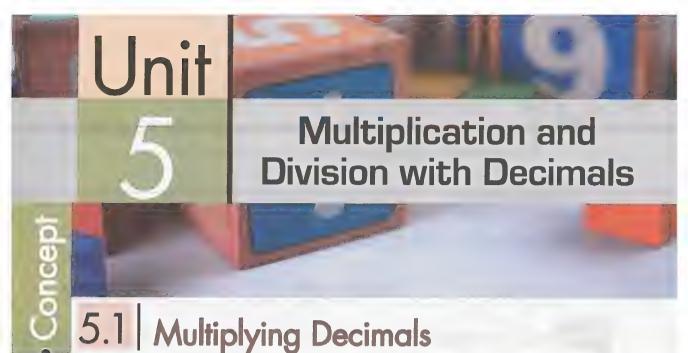






### 2 Answer the following:

In her cafe, Rana sells cakes that were baked in a bakery. Rana received an order to deliver 350 cakes. She put the cakes in bags, 12 cakes each. Find the number of bags.



Lessons 1&2:

Multiplying by Powers of Ten Multiplying Decimals by Whole Numbers

**Learning Objectives:** 

By the end of these lessons, the student will be able to:

- Explain patterns when multiplying whole numbers by powers of ten.
- · Multiply a decimal by a whole number.

Lessons 3-5:

Multiplying Tenths by Tenths
Estimating Decimal Products
Using the Area Model to Multiply Decimals

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- · Use models to represent multiplying decimals.
- · Explain patterns when multiplying Tenths by Tenths.
- Estimate products of decimals.
- · Use the area model to multiply decimals.

#### Lessons 6&7:

Multiplying Decimals through the Hundredths Place Multiplying Decimals through the Thousandths Place

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the standard algorithm to multiply decimals through the Hundredths place.
- Use the standard algorithm to multiply decimals through the Thousandths place.
- Use estimation to check the reasonableness of his/her answers.

#### Lessons 8-10:

Decimals and the Metric System
Measurement, Decimals, and Powers of Ten
Solving Multistep Story Problems

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain relationships between the metric system and decimals.
- Use decimals to represent equivalent measurements.
- Relate converting measurements in the metric system to multiplying by powers of ten.
- Solve multistep story problems involving addition, subtraction, and multiplication of decimals.



### **Multiplying by Powers of Ten** Multiplying Decimals by Whole Numbers

#### Remember

Multiplying by (10, 100, 1,000,...)

Note You can add zeros to the left of the last non-zero digit, or add a decimal point to the whole number, or add zeros to the right of the decimal point without changing the value of the number.

### Learn

Multiplying by (10, 100, 1,000,...)

$$8.0_{4}0_{4} \times 100 = 800$$

When multiplying by 10, 100, or 1,000, move the decimal point  $43.4.5 \times 100 = 345$ to the right with the same number of zeros.

$$3.4.5 \times 10 = 34.5$$
  
 $3.4.5 \times 100 = 345$   
 $3.4.5 \times 1,000 = 3,450$ 

### Multiplying by (0,1, 0,01, 0,001,...)

$$8. \times 0.1 = 0.8$$

$$8. \times 0.01 = 0.08$$

$$8. \times 0.001 = 0.008$$

When multiplying by 0.1, 0.01, or 0.001, move the decimal point  $\leftarrow$  2,1,7  $\times$  0.01 = 0.217 to the left by the same number of decimal parts.

$$2.1.7 \times 0.1 = 2.17$$
  
 $2.1.7 \times 0.01 = 0.217$   
 $2.1.7 \times 0.001 = 0.0217$ 

The place of the whole number cannot be left blank. a "0" is added to save its place.

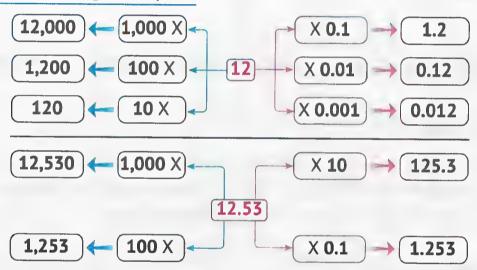
### Complete the following patterns:

a

**b** 

C

### Note the following examples:



#### 2 Complete the following:

### Complete the following table:

X	10	100	1,000	1	0.1	0.01	0.001
3					***************************************		
30					***************************************		
0.3			***************************************	1*************			

### Learn

### Multiplying Decimals by Whole Numbers

#### Note the following pattern:

#### In another way:

When multiplying a whole number by a decimal, we do the multiplication without the decimal point and then put the decimal point while maintaining the same number of decimal parts.



- 1) We multiply:  $23 \times 9 = 207$
- 2) Then we put the decimal point after two digits (2.09).

 $S_{0}$ , 23  $\times$  0.09 = 2.07

### 4 Find the product of:

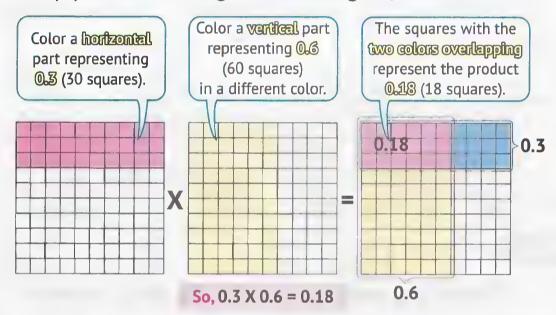


# Multiplying Tenths by Tenths Estimating Decimal Products Using the Area Model to Multiply Decimals

### Learn

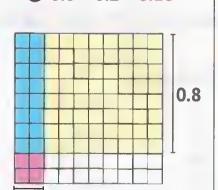
### Multiplying Decimals with Arrays (The Base 10 Grids)

To multiply: 0.3 x 0.6 (using the Base 10 grids)

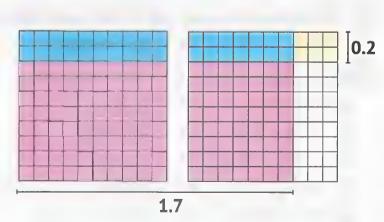


 $\bigcirc$  0.2 × 1.7 = 0.34

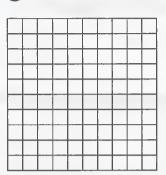
### Examples:

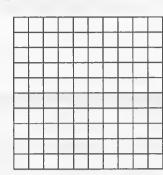


 $0.8 \times 0.2 = 0.16$ 

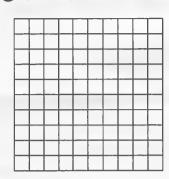


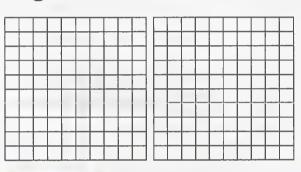
### 1 Use the Base 10 grids to find the product:

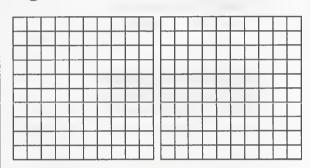




$$\bigcirc$$
 0.7 X 0.2 = .....







### Learn

### Estimating the Products of Multiplying Decimals

To estimate decimals, round both numbers to the nearest whole number, and then multiply.

2 Estimate the product of the multiplication (round to the nearest whole number) as in the example:

**Example:** 24.3 × 1.8 → Estimate: 24 X 2 = 48

- ⓐ 28.2 × 11.5 → Estimate: X = .....
- **b** 499.6 × 12.7 **Estimate:** X ......
- **©** 558.25 × 99.6 → Estimate: ..... X ..... = .....
- **d** 6,649.9 × 0.8 → Estimate: X = .....
- **f** 8,450.321 × 2.2 → Estimate: ..... X ..... = .....



### Using the Area Model to Multiply-Decimals

### **Example:** Multiply using the area model:

$$\bigcirc$$
 3.8 × 0.27

$$3.8 \times 0.27 = 0.6 + 0.16 + 0.21 + 0.056$$
  
= 1.026

	3	0.2	0.04
5	15	1	0.2
0.2	0.6	0.04	0.008

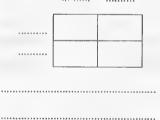
	3	0.8
0.2	0.6	0.16
0.07	0.21	0.056

### 3 Multiply using the area model:

**a** 0.8 X 2.7

****	*****			
			<del></del>	

**6** 4.2 X 3.6



**G** 7.4 X 27.3

-	 	
L		



Multiplying Decimals through the Hundredths Place Multiplying Decimals through the Thousandths Place

### Learn

### Using the Standard Algorithm to Multiply Decimals

**Example:** Multiply: **②** 32.5 X 7.3 **③** 3.25 X 7.3

© 3.25 X 73

**32.5 X 73** 

3 2 5

- Multiply the two numbers without the decimals.

73 975

- Put the decimal point in the result from the right, after the number of digits equal to the sum of the decimal places in the two numbers before the multiplication.

22.750 23.725

= 237.25 7.3 a 32.5 X

b

3.25 X 7.3 = 23.725

1 Decimal 1 Decimal **Place** Place

2 Decimal **Places** 

2 Decimal **Places** 

1 Decimal **Place** 

3 Decimal **Places** 

73 3.25 237.25 0 Χ

**a** 

32.5 X

73 = 2372.5

2 Decimal **Places** 

2 Decimal No Decimal Places **Places** 

1 Decimal **Place** 

No Decimal **Places** 

1 Decimal **Place** 

 If the number of digits of the product is less than the sum of the number of decimal places, add zeros by the amount of increment to the left of the resulting number, and then put the decimal point.



4 X 2 = 8, the product of multiplication is one digit, and we need 3 digits, so we add two zeros and then put the decimal point.

### 1 Use the standard algorithm to multiply (24 X 13), then complete:

24

X . 13

$$\bigcirc 0.24 \times 0.13 = \dots$$

### 2 Use the standard algorithm to multiply:

a

3.56

X 2.5

6

2.369

0.34

+ .....

C

56.32

X 1.3

+ .....

**d** 

2.036

X 0.02

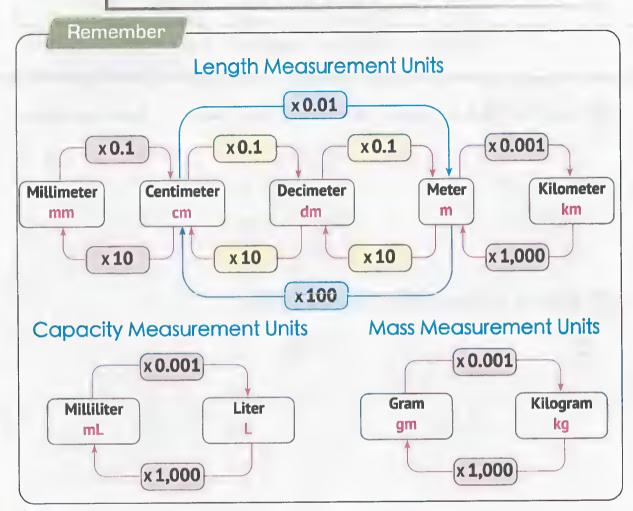
+ .....



Decimals and the Metric System

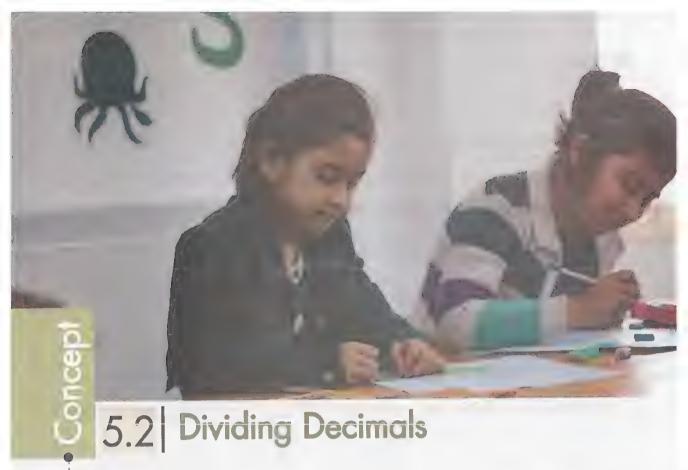
Measurement, Decimals, and Powers of Ten

Solving Multistep Story Problems



1 Complete, as in the examples:

f	56.89 L	=	. X	,, =	mL.
g	56 m	=	X	=	km.
	Answer the	following:			
а	Rania is a	nurse in a hospita	al. She is getting	wrap bandages fr	om the
	storage clo	set for her patien	ts. She needs 1.3	5 meters of banda	iges foi
	each of her	4 patients. How r	nany meters does	s she need?	
					***************************************
6	Dalia made	a liter of sugar ca	ane iuice. She dra	nk <b>320</b> milliliters.	
				uice is remaining? (Ir	n litres)
	•••••••••••••••••••••••••••••••••••••••				
					••••••
G	Ehab wants	to know how mi	uch he has growi	n this year. In Janu	iarv he
				r, he was 1.5 mete	/ -
		did Ehab grow this			
	••••••				*************
	•••••				***************************************
<b>a</b>	Marwan is o	lesigning a new c	ircuit board for th	ne computer he	
		The old circuit boa			
	millimeters.	He planned for the	new circuit board	to be 80 mm by	
	5.5 cm. What	is the difference i	n area of the circu	it boards? (In centin	neters)
	•••••				***************************************
	*****************************	•••••••••••••••••••••••••••••••••••••••	***************************************		****************



#### Lessons 11-13:

Dividing by Powers of Ten Patterns and Relationships in Powers of Ten Modeling Decimal Division

#### Long the fact and the

By the end of these lessons, the student will be able to:

- Explain patterns he/she notices when dividing by powers of 10.
- Make connections between multiplying and dividing by powers of ten.
- Explain the meaning of decimal division problems.
- · Use models to represent decimal division.

#### Lessons 14-17:

Estimating Decimal Quotients
Dividing Decimals by Whole Numbers
Dividing Decimals by Decimals
Solving Challenging Multistep Story Problems

#### Landing Ob acions

By the end of these lessons, the student will be able to:

- Estimate quotients of decimal division problems.
- Use the standard algorithm to divide decimals through the Thousandths place.
- Use estimation to check the reasonableness of his/her answers.
- · Solve multistep story problems involving addition, subtraction, multiplication, and division of decimals.



### Dividing by Powers of Ten o Patterns and Relationships in Powers of Ten Modeling Decimal Division

### earn

### Dividing by (10, 100, 1,000, ....)

$$8. \div 10 = 0.8$$
 $8. \div 100 = 0.08$ 
 $8. \div 1,000 = 0.008$ 

When dividing by 10, 100, or 1,000. move the decimal point  $\checkmark$  24.36 ÷ 100 = 0.2436 to the with the same number of zeros.

$$24.36 \div 10 = 2.436$$

$$24.36 \div 100 = 0.2436$$

$$24.36 \div 1,000 = 0.02436$$

### Dividing by (0.1, 0.01, 0.001, ....)

8. 
$$\div$$
 0.1 = 80  
8.  $\div$  0.01 = 800  
8.  $\div$  0.001 = 8,000

When dividing by 0.1, 0.01, or 0.001, move the decimal point to the right with the same number of decimal parts.

$$\begin{cases} 24.36 \div 0.1 = 243.6 \\ 24.36 \div 0.01 = 2,436 \\ 24.36 \div 0.001 = 24,360 \end{cases}$$

The whole number place cannot be left blank, so "0" is added to save its place.

### 1 Complete the following patterns:

#### 2 Divide:

- **a** 800 ÷ 1,000 = .....
- **6**,700 ÷ 100 = .....
- $\mathbf{C}$  5.7 ÷ 0.1 = .....
- **d**  $2.16 \div 0.01 = \dots$
- © 71 ÷ 1,000 = .....
- **f**  $12.8 \div 0.01 =$

### 3 Complete the following:

**d** ..... 
$$\div 0.01 = 10.230$$

$$\bullet$$
 .....  $\div$  0.001 = 20,000

### .earn

### Metric Conversions with Multiplication and Division

### ofte.

Multiplying by (0.1, 0.01, 0.001 ...) equivalent

Dividing by (10, 100, 1.00 ...)

$$2.5 \times 0.1 = 0.25$$
,  $2.5 \div 10 = 0.25$ 

 $2.5 \times 0.1 = 2.5 \div 10 = 0.25$ 

Multiplying by (10, 100, 1.00 ...)

equivalent Dividing by (0.1, 0.01, 0.001 ...)

$$2.5 \times 10 = 25$$
,  $2.5 \div 0.1 = 25$ 

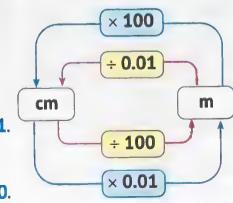
 $2.5 \times 10 = 2.5 \div 0.1 = 25$ 

#### From the above, we find that:

- When converting from one measurement unit to another, you can use multiplication or division. × 100

### Note the corresponding figure:

- To convert from meters to centimeters, you can multiply by 100 or divide by 0.01.
- To convert from centimeters to meters, you can multiply by 0.01 or divide by 100.



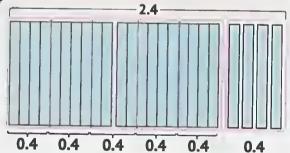
## 4 Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

### Learn

### **Modeling Decimal Division**

Note the corresponding figure,
where each column
represents 0.1.

- 2.4 consists of two squares, each consisting of 10 columns, in addition to 4 other columns (24 columns).

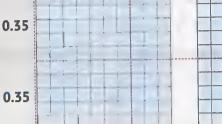


- 0.4 is 4 columns.
- Dividing 2.4 by 0.4 means how many groups of 0.4 by 2.4.
- We find that there are 6 groups, each consisting of 4 columns (0.4),  $(24 \div 4 = 6)$ .

So,  $2.4 \div 0.4 = 6$ 

### Example (2): Divide: 1.4 ÷ 0.35

Note the corresponding figure, where each square represents **0.01**.



0.35

0.35

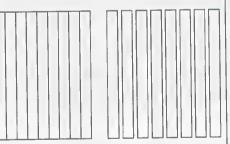
- 1.4 is a square consisting of 100
squares in addition to 40 other 0.35
squares (140 columns).

- 0.35 is 35 squares.
- Dividing 1.4 by 0.45 means how many groups of 0.35 by 1.4.
- We find that there are 4 groups, each consisting of 35 squares (0.35),  $(140 \div 35 = 4)$ .

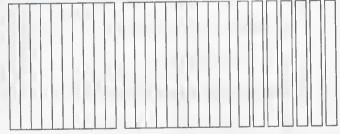
So,  $1.4 \div 0.35 = 4$ 

### 5 Use the Base 10 blocks to model the following problems:

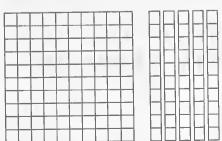
**a** 1.8 ÷ 0.3 = .....



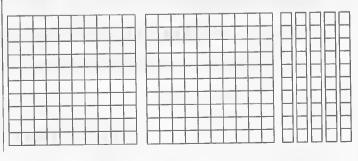
**b** 2.7 ÷ 0.9 = .....



**©** 1.5 ÷ 0.15 = .....



**a**  $2.5 \div 0.25 = \dots$ 





# Estimating Decimal Quotients Dividing Decimals by Whole Numbers Dividing Decimals by Decimals Solving Challenging Multistep Story Problems

### Learn

### **Estimating Decimal Quotients**

**Example:** Estimate: 45.64 ÷ 6.87

Round the dividend to the nearest compatible whole number (a number that is divisible by the divisor after rounding).

The number 45.64 lies between 42 and 49.

45.64 ÷ 6.87

Round the divisor to the nearest whole number:

6.87 ≈ 7

If you use 42, the estimate will be of a lower value:  $42 \div 7 = 6$ . If you use 49, the estimate will be of a larger value:  $49 \div 7 = 7$ .

### 1 Estimate the decimal quotients in each of the following:

**43.35** 
$$\div$$
 5

2 Emad, an electrician, is the project manager for an upcoming construction project. He needs to find estimates for various projects on site. Read through each problem and estimate the answer:

	Problem	Estimation
\$ C. 3	A team of workers excavates <b>15.84</b> cubic meters of dirt each hour. How long will it take them to excavate <b>78.1</b> m <sup>3</sup> of dirt?	
(b)	The frame of the building will be made of 25.3 metric tons (t) of concrete and 52.8 t of steel.  What is the total mass of the frame of the building?	
0	Each floor of the building needs 28.3 meters of plastic piping. The team has a total of 314.58 m of piping. How many floors can they fit with the piping?	
0	Each steel joist can support <b>224.6</b> kilograms of weight. How much weight can <b>10</b> steel joists support?	

### Dividing Decimals by Whole Numbers

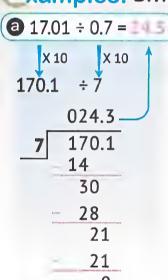
- Assume that the two numbers are whole numbers and do the division.
- Put the decimal point in the result in the same position as the dividend.

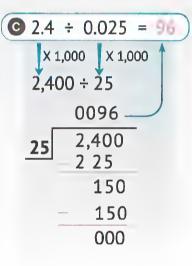
### **Examples:** Divide:

### **Dividing Decimals by Decimals**

- Convert the divisor into a whole number: by moving the decimal point to the right (by multiplying by 10, 100, or 1,000...) according to the number of decimal places in the divisor.
- Move the decimal point to the right in the dividend by the same number of digits moved in the divisor.
- You may need to add zeros to the right of the divisor sometimes.
- Perform the division operation.

### xamples: Divide:





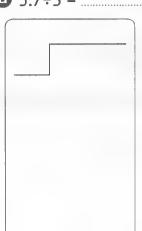
### No tes

Sometimes we may need to add a decimal point and an addition to complete the division process, as in the following examples:

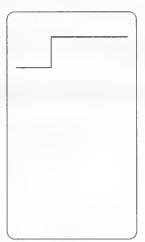
- 1 When dividing 16.1.4.1.7, the quotient is 38 and the remainder is 6, so we add the decimal point and 0 to the dividend to complete the division (456 ÷ 12 = 38.5).
- When dividing  $97 \div 4$ ,
  the quotient is 24 and the remainder is  $1, \cdots$  we add the decimal point and 0 to the dividend twice to complete the division  $(97 \div 4 = 24.25)$ .

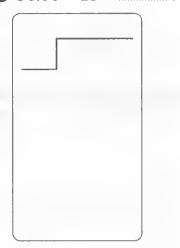
12	038.5 462.0 36 102	4	24.25 97.00 8
	96	_   -	16
	6 0		1 0
	6 0		8
	0		20
			20
			0

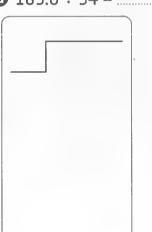
### 3 Use the standard algorithm to divide:

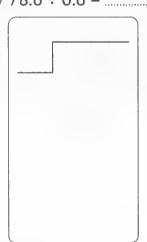


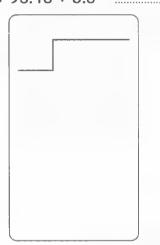
**a** 
$$5.7 \div 3 =$$
 **b**  $42.85 \div 5 =$  **c**  $36.66 \div 13 =$  **d**



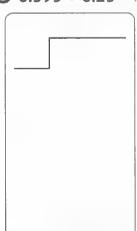


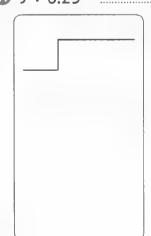


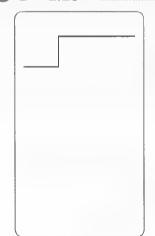




**9** 
$$8.395 \div 0.23 =$$
 **6**  $9 \div 0.25 =$  **6**  $2 \div 1.25 =$  .





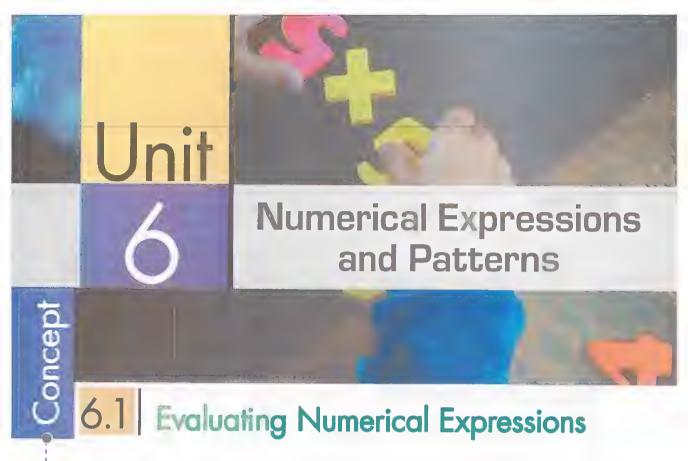


### 4 Answer the following:

a	Abdallah buys the sturdiest boxes for the products at his market. He
	wonders what the mass of the box is in kilograms. The total mass of
	a box and 3 identical pomegranates is 1.03 kg. When the identical
	pomegranates in the box are <b>tripled</b> , the total mass is <b>2.29</b> kg. What is the mass of one of Abdallah's empty boxes?
6	Samira is training for her weightlifting competition. She attaches 4 weights to her bar, a pair of larger weights and a pair of smaller weights. One of the larger weights is 12.4 kilograms heavier than one of the smaller weights. Together the four weights have a mass of 100 kg. What is the total mass of the pair of larger weights?
0	Basem is having a sale at his sweets shop. One chocolate candy is 1.95 LE. He will provide 2 free candies for every 10 bought. A customer wants to buy 100 candies for an event. How much will the customer spend?

<b>a</b>	As part of her fitness training, Samira cycles 42.12 kilometers in 2 hours.
	If she cycles at the same rate the entire time, how far will she travel in 1 hour?
	Give your answer in kilometers and meters using whole numbers.
	km.
	m.
,	Magdy is filling identical vases with water for flower arrangements at the florist. He pours 18 liters and 250 milliliters equally into 24 vases. When he is finished, Magdy still has 0.85 L of water left.  How much water is in each vase? Give your answer in liters.





#### Lessons 1 - 4:

Numerical Expressions
Numerical Expressions with Grouping Symbols
Placing Grouping Symbols
Writing Expressions to Represent Scenarios

#### **Learning Objectives:**

By the end of these lessons, the student will be able to:

- Use the order of operations to evaluate expressions with whole numbers and decimals.
- Identify how grouping symbols affect the order of operations.
- Evaluate an expression with grouping symbols.
- · Evaluate expressions with grouping symbols.
- · Place grouping symbols in expressions to generate given values.
- Write an expression to represent a written scenario.



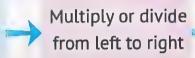
#### **Numerical Expressions**

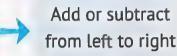
Numerical Expressions with Grouping Symbols Placing Grouping Symbols Writing Expressions to Represent Scenarios



### **Basic Order of Operations**

Perform operations inside parentheses if any





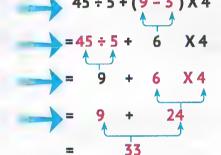
**Example:** Use the order of operations to evaluate the expression:

Perform the subtraction inside the parentheses.

Perform the division operation.

Perform the multiplication operation.

Perform the addition operation.



1 Use the order of operations to evaluate each expression, one step at a time:

**a** 597.8 ÷ 6.1 + 13 X 1.7 =

= ..... = .....

- **5** 56.5 X 2.3 15 + 12.7
- **©** 82.43 X 3.1 + 4.05 ÷ 0.01 2.5

= \_\_\_\_\_\_ = \_\_\_\_\_ **1** 90.7 + 116.6 X 0.1 X 2 - 20

= \_\_\_\_\_\_

(14.5 - 12.3 ÷ 0.01) + 9.8

\_\_\_\_\_

=

(45.42 - 17.11) X (82.9 + 17.1)



### **Expanded Order of Operations**

Operations within parentheses ( )

Operations within brackets [ ]

Operations outside of parentheses or brackets

- 1 Multiply or divide from left to right
- 1 Multiply or divide from left to right
- Multiply or divide from left to right

- 2 Add or subtract from left to right
- 2 Add or subtract from left to right
- 2 Add or subtract from left to right

### **Example:** Use the order of operations to evaluate the expression:

( ) Operations within parentheses ( )

Operations within brackets [ ]

= 
$$3.5 \times [1.4 \div 10 - 0.04] + 2.84$$

- 1

Operations outside
of brackets

### 2 Use the order of operations to evaluate each expression:

a 2.5 ÷ [ 0.5 X ( 4.3 – 4.2 ) ] – 2.4

0	8.4	÷	(	3.6	+	0.4	4)	Χ	3	]	+	2.7

	 	 	 		• • •	• • •	• • •	• •	 **	• • •	• • •	 	- •	* *	*	 	• •	*		٠		* *		 • •	* *	١
=	 	 	 						 			 														
	 	 	 						 			 	• •		٠.	 		•	• •	•	• •	•	•	 •••	•	 ١
=	 	 	 	,					 			 , ,				 				٠				 		
_																										

**©** 7.5 X [ 4 – ( 7.6 + 2.4 ) X 0.2 ]



### Changing the order of operations leads to a change in the value.

Note the following examples:

$$= 10 - 0.16 + 2$$

$$= 9.84 + 2$$

$$= 10 - 0.1 \times 3.6$$

$$= 10 - 0.36$$

$$= 9.9 \times (1.6 + 2)$$

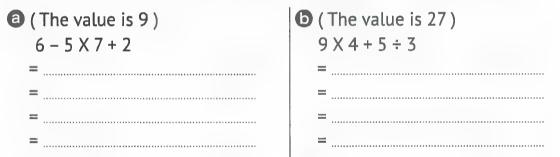
$$= 9.9 \times 3.6$$

=

	3	Use the	order of	operations	to	evaluate	each	expression
--	---	---------	----------	------------	----	----------	------	------------

a	30 X 2.5 + 47.18 - 3.12 ÷ 0.1	<b>5</b> 30 X ( 2.5 + 47.18 - 3.12 ÷ 0.1 )
	=	=
	=	=
	=	=

4 Place grouping symbols (parentheses and/or brackets) in the expressions to generate the given values. Sometimes grouping symbols are not needed.



- © (The value is 13)
  2 X 18 ÷ 9 + 9

  =
  =
  =
  =
  =
  =
  =
  =
  =
  =
  =
  =
- (The value is 42.35) 3.8 X 9.5 + 6.25
  =
  =
  =
  =





### Writing Expressions to Represent Scenarios

Note the following mathematical expressions:



**Example:** Write an expression that matches the clues. Then, evaluate the expression:

Subtract 3.5 from 7.2 and divide the result by 10.

divide the result by 10 Multiply 2.5 by 0.1 and add 3.2

Parentheses are used if the first operation is subtraction or addition.

$$(7.2 - 3.5) \div 10$$
$$= 3.7 \div 10 = 0.37$$

No parentheses are needed if the first operation is multiplication or division.

$$(2.5 \times 0.1) + 3.2$$
$$= 0.25 + 3.2 = 3.45$$

Multiply 217 by 0.01 and subtract the result from 4.8, then divide by 10

$$(4.8 - 217 \times 0.01) \div 10$$
  
=  $(4.8 - 2.17) \div 10 = 2.63 \div 10 = 0.263$ 

Parentheses are placed to perform **subtraction before division**, and parentheses are not placed for multiplication because it is natural that it is performed first.

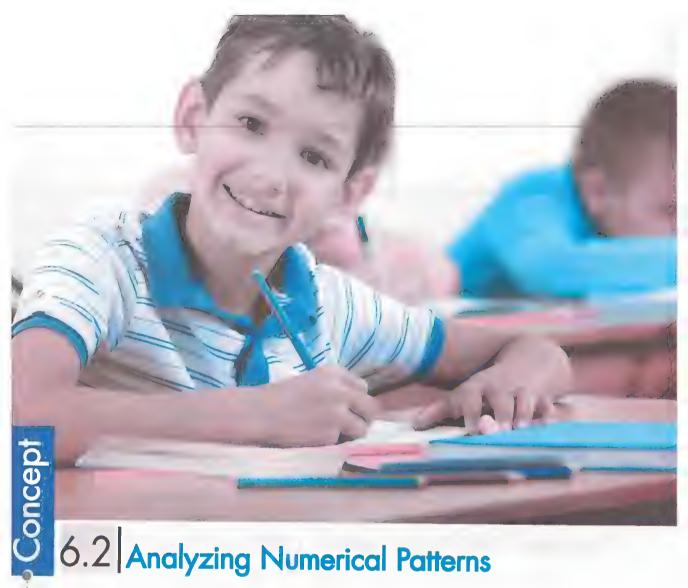
5 For each problem, write an expression that matches the clues. Then, evaluate the expression:

<b>a</b>		from 4. result b	<b>62</b> . Then, by <b>2</b> .

0	Divide	93	by	0.3	and	then	add	114.	7
	After ti	hat,	div	ride	the	resul	t by	<b>5</b> .	

***************************************	 *****************	••••••
	 ***************************************	•••••
••••••	 ***************************************	••••••

**Mathematical Operations and Algebraic Thinking** 



#### Lessons 5 - 7

#### **Identifying Numerical Patterns Extending and Creating Numerical Patterns Solving Problems with Numerical Patterns**

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- · Identify a numerical pattern.
- Explain the rule for a numerical pattern.
- Use letters to represent unknown quantities in a rule for a numerical pattern.
- Extend a numerical pattern.
- Create a numerical pattern.
- Create two numerical patterns using two given rules.
- Solve real-world problems involving numerical patterns.



# Extending and Creating Numerical Patterns With Numerical Patterns

#### Learn

#### **Numerical Pattern**

It is a sequence of numbers according to a certain rule.

Pattern rule: is the relationship between the number and the number before it.

xample: Note the following patterns:

Each number = the previous number + 3

The pattern rule is: n+3 (the variable n represents the previous number)

Each number = the previous number X 2

The pattern rule is: n X 2 (the variable n represents the previous number)

1 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

а	5	,10,15	, 20	, 25 , 30	,,	Rule:
---	---	--------	------	-----------	----	-------



### Input/Output Tables

Pattern rule: is the relationship between the input number and the output number.

Note the following patterns:

Input	Output
1	5
2	10
3	15
4	20

Input	Output
8	2
16	4
24	6
32	8

Output number = input number X 5 Rule: n X 5

Output number = Input number ÷ 4 Rule: n ÷ 4

- Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:
- Input Output 6 17 3 4 5 24

Rule:

)	Input	Output
	2	6
	3	9
	4	*************
	*************	15
	***************************************	18

***************************************	18
Rule:	

C	Input	Output
	6	1
	8	3
	10	5
	12	•••••
	***************************************	9

Rule:	***************************************

0	Input	Output
	6	4
	8	6
	10	8
	***************************************	10
	14	*************

Rule:

#### earn

A pattern rule can consist of more than one operation.

Note the following patterns:

Input	Output
10	6
12	7
14	8
16	9

Rule:  $n \div 2 + 1$ 

Input	Output
31	10
34	11
37	12
40	13

Rule:  $(n-1) \div 3$ 



a	Input	Output	
	2	7	
	3	10	
	4	13	
	5	*** ****	
		19	

Input	Output	
1	6	
3	16	
5	26	
	36	
9		

Input	Output
10	4
12	5
	6
16	
18	
Pulo	

Input	Output
2	4
3	9
4	16
5	
	36

d

Rule:

Rule:

Rule:

### 4 Using the given information, list the first five numbers in the pattern:

**d** Starting number: 11, Rule: (n + 3) X 10: \_\_\_\_\_, , , , , ,

#### 5 Use a pattern to help you solve each problem:

a When Shams was 6 years old, her brother Tamer was half her age.

Complete the table to show Shams' and Tamer's ages.

Shams'	Tamer's
Age	Age
15	** ********
17	
	16
22	
	21

How old will Tamer be when Shams is 12?

**b** A seamstress is making dresses She noticed the amount of fabric she used to make 3 dresses and to make 5 dresses. Use the pattern to complete the table.

Number of	Fabric				
Dresses	Needed (m)				
1					
2					
3	7.5				
4					
5	12.5				

How much fabric will the seamstress need to make 7 dresses?



سلسلة كتب الاستان









## **Number Sense and Operations**

Unit 1: Decimal Place Value and Computation

Pages 4 - 32

**Unit 2: Number Relationships** 

Pages 33 - 59

Unit 3: Multiplication with Whole Numbers

Pages 60 - 78



# Mathematical Operations and Algebraic Thinking

Unit 4: Division with Whole Numbers

Pages 79 - 102

Unit 5: Multiplication and Division with Decimals

Pages 103 - 132

Unit 6: Numerical Expressions and Patterns

Pages 133 - 143



## Number Sense and Operations



## Units of the Theme



# Decimal Place Value and Computation

Concept 1.1: Decimals to the Thousandths Place
Concept 1.2: Adding and Subtracting Decimals

Unit 2

### Number Relationships

Concept 2.1: Expressions, Equations, and the Real World Concept 2.2: Factors and Multiples

Unit 3

# Multiplication with Whole Numbers

Concept 3.1: Models for Multiplication

Concept 3.2: Multiplying 4-Digit Numbers by 2-Digit Numbers

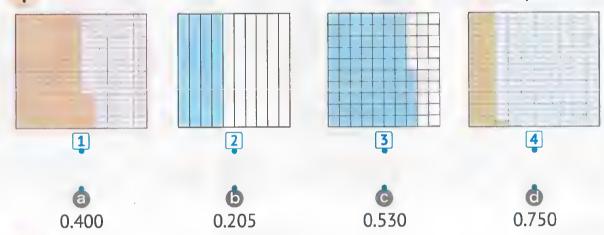
# Decimal Place Value and Computation

## 1.1 Decimals to the Thousandths Place

## Exercises on Lessons 1 & 2

The Journey Begins & Decimals to the Thousandths Place

1 Match each decimal model to the decimal number it represents:



2 Write each fraction as a decimal:

3 Complete the following:

- 3 45,025,003.36 (in word form):

4 9,200,000,065.027 (in word form):
In 457,258,350.68, the digit 6 is in the place and its value is
•
In 500,725,235.102, the digit in the Hundredths is and its value is
7 The value of 9 in the Hundredths place is
8 If the value of 3 is 0.3, then its place value is
9 The greatest decimal number that can be formed from the digits (6, 3, 9,
8, 2, 7) up to the Hundredths is
10 The greatest decimal number that can be formed from the digits (8, 3, 2,
0, 8) up to the Tenths is
11 The smallest number that can be formed from the digits $(3, 9, 0, 5)$ up to
the Thousandths is
12 The smallest number that can be formed from the digits (8, 3, 5, 8, 2, 7, 2)
up to the Hundredths is
13 0.523 = thousandths, hundredths, tenths.
= 7 tenths, 9 thousandths.
= 2 hundredths, 4 thousandths.
Choose the correct answer:
1 Seven milliard, fifty thousand and seven hundredths =
(7,050.07 • 7,000,050.07 • 7,000,050,000.07 • 7,000,050,000,.07)
2 56,000,500.035 (in word form):
(fifty-six thousand, five hundred and and thirty-five thousandths
or fifty-six million, five hundred and thirty-five thousandths
of fifty-six million, five hundred thousand and thirty-five thousandths
or fifty-six million, five hundred thousand and thirty-five hundredths)

HEME Number Sense and Operations	
The place value of 5 in <b>5</b> 28,239.247 is	
(Hundred Millions @ Hundred Thousands @ Hundreds @ Hundred	lths )
4 The value of 0 in 247,369.205 is	
$(0.001 \odot 0.01 \odot 0.1$	<u>o</u> 0)
5 If the value of 7 is 0.7, then its place value is	
(Tenths @ Ones @ Tenths @ Hundre	dths)
6 If the place value of 3 is Thousandths, then its value is	
(0.003 • 0.03 • 0.03 • 3	,000)
$7 + \frac{45}{100} = \dots$ (4.45 @ 445 @ 4.045 @	45.4)
8 2.053 =	253 ,000)
9 The greatest decimal number that can be formed from the digits	
(9, 2, 2, 3, 7, 9) up to the Hundredth is	
(9,973.22 @ 2,237.99 @ 99,732.2 @ 22,37	79.9)
10 The greatest decimal number that can be formed from the digits (6	, 8,
9, 4) is (9.864 <b>o</b> 98.64 <b>o</b> 986.4 <b>o</b> 9	,864)
11 The smallest decimal number that can be formed from the digits	
(6, 2, 0, 8, 3) up to the Thousandths is	
(2,036.008 @ 86.302 @ 2,036.8 @ 20	.368)
12 The number of Tenths in 0.386 is parts. (3 @ 30 @ 83 @	386)
13 6 hundrodths = (6 @ 0.60 @ 0.060 @ 0	

14 6 tenths, 9 thousandths = ...... (0.609 @ 0.069 @ 6.009 @ 0.906)

## Assessment on Lessons 1&2

First: Complete the following	owing:			
1 Nine milliard, ninety thousand a		gits):		
2 6,200.09 (in word form):				
The place value of <b>9</b> in 5 <b>9</b> 6,258.				
4 The greatest decimal number fo	rmed from the digits (9, 8,	0, 2, 9, 5) up to the		
Hundredths is				
<b>5</b> The value of <b>0</b> in 653,852.2 <b>0</b> 8 is		•		
Second: Choose the corre	ct answer:			
1 Four hundred million, thirty thou	sand and thirty hundredth	าร =		
<b>a</b> 400,030,000.30 <b>b</b> 400,030	0.03	<b>d</b> 430.30		
<b>2</b> 3,000,003.003 (in word form):	4			
a Three hundred, three million	and three thousandths			
<b>6</b> Three million, three and three	e thousandths			
Three million, three thousand	and three thousandths			
Three hundred thousand, three	ee and three thousandths			
In, the place val				
<b>a</b> 500.46 <b>b</b> 46.005		<b>d</b> 46,500		
The <b>smallest</b> decimal number th to the Thousandth is		digits (5, 2, 3, 7, 2) u <sub>l</sub>		
<b>a</b> 22,357 <b>b</b> 2,235.7	<b>©</b> 223.57	<b>@</b> 22.357		
The digit that represents the Tho	ousandths in 4,568.178 is .	•		
<b>a</b> 1 <b>b</b> 7	<b>©</b> 8	<b>G</b> 4		
Third: Match:				
1 Nine hundred million and nine I	nundred thousandths	<b>a</b> 900,000.90		
2 Nine hundred thousand and nin	ety hundredths	<b>6</b> 909.009		
3 Nine hundred, nine and nine tho		<b>9</b> 900,000,000.900		
Mine hundred million and nine t	thousandths	<b>d</b> 900,000.09		

5 Nine hundred thousand and nine hundredths

900,000,000.009

## Exercises on Lessons 3 & 4

#### Place Value Shuffle & Composing and Decomposing Decimals

- 1 Find the result of each of the following using the place value chart:
  - 1 4.52 X 10 = .....

Thou	Thousands		Oı	Ones				Decimals	
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

2 456.258 X 10 = .....

Thousands		Ones			Point	4	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

**3** 56.28 ÷10 = .....

Thousands			Ones			l Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

4 253.9 ÷ 10 = .....

Thousands			Ones			l Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

**5** 9832 ÷10 = .....

Thousands		Ones			<b>Point</b>		S		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

#### 2 Complete the following:

- The value of ...... increased when multiplying by 10 to 8.57.
- 3 The value of 36.6 ....................... when multiplying by 10 to 366.
- 5 The value of ...... increased when dividing by 10 to 24.8.
- 6 The value of 1.25 ...... when dividing by 10 to 0.125.
- | 7 | 893 ÷ 10 = ...... | 8 | 6.38 ÷ 10 = .....
- 9 .....  $\div 10 = 2.7$
- 10 458.36 X 10 = .....
- 11 X 10 = 25
- 12 3.000 + 500 + 0.8 + 0.07 + 0.006 = ......
- **13** 25 + 0.025 = .....
- 14 200 + 30 + 5 + 0.48 = ......
- **15** 63 + 0.025 = **16** 43.043 = 43 +
- **17** 8.258.36 = 8,000 + 200 + 50 + 8 + ......
- 18 95.905 = .....(in expanded form)
- 19 85.36 = ...... Tens + ...... Ones + ..... Tenths + ...... Hundredths.

#### 3 Choose the correct answer:

1 The value of ...... increased when multiplying by 10 to 25.26.

(25.26 **o** 252.6 **o** 2.526 **o** 2,526)

The value of ......decreased when dividing by 10 to 0.026.

 $(0.026 \odot 0.26 \odot 2.6 \odot 26)$ 

3 X 10 = 258

(2580 **1** 258 **1** 25.8 **1** 2.58)

4 45 X 10 = .....

(450 **1** 0.45 **1** 4.5 **1** 40.5)

5 | 8.05 ÷ 10 = .....

- (805 @ 8.5 @ 80.5 @ 0.805)
- 6 When all digits of a number move one place to the left, its value
  - (decreases or increases or does not change or other)
- When all digits of a number move one place to the ....., its value decreases. (right or left or other)

- 8  $23 + 0.02 + 0.003 = \dots$  (2,302,00 or 2,323 or 23.023 or 23.23)
- 9 824.12 = ..... (824 + 1 + 2 @ 824 + 12 @ 824 + 0.12 @ 800 + 200 + 4 + 10 + 2)
- - or decreases from 0.7 to 0.07)

#### 4 Match:

- 1 58.25 X 10
- 2 58.25 ÷ 10
- 3 582.5 X 10
- 4 582.5 ÷ 10

- **a** 58 + 0.25
- **b** 582 + 0.5
- $\bigcirc$  5 + 0.825
- **d** 5,800 + 25
- 5 Use the digits (8, 5, 7, 0) and form the smallest decimal number up to the Thousandths, then multiply the result by 10, and complete:

	Whole Number							Decimals			
	ısand			nes		P P					
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decir	Tenths	Hundredths	Thousandths		

- 1 The value of \_\_\_\_\_ (increased/decreased) when multiplying by 10 from \_\_\_\_\_ to \_\_\_\_\_.
- The value of \_\_\_\_\_ (increased/decreased) when multiplying by 10 from \_\_\_\_\_ to \_\_\_\_\_.

## Assessment on Lessons 3&4

First.	Choose	the	correct	answer:
--------	--------	-----	---------	---------

1 The value of 45.26	increases when r	multiplying by	v 10 to
----------------------	------------------	----------------	---------

$$\bigcirc$$
 2 + 0.005

$$\bigcirc$$
 20 + 0.05

#### Second: Complete the following:

#### Third: Match:

#### Fourth: Put (1) or (1) in front of each statement:

$$\boxed{3}$$
 2.725 ÷ 10 = 27.25

) 
$$\boxed{5}$$
 200 + 20 + 0.2 + 0.002 = 220.202 (

## Exercises on Lessons 5 & 6

#### **Comparing Decimals & Rounding Decimals**

#### Complete using (<, = or >):

1 456.25

45.625

**2** 79.02

790.2

3 42.9

42,900

4 12.500

12.050

5 98.78

103.5

6 90.05

900.5

7 8.5 X 10

85 ÷ 10

8 9.08 X 10

9.08 ÷ 10

9 0.5 X 10

50

**10** 85.03

80 + 5 + 0.03

**11** 75 + 0.05

75.50

**12** 107.05

One hundred, seventy-five hundredths

13 800,008.3

Eight hundred, eight thousand and three tenths

14 700,050,005.50

Seven hundred million, fifty thousand, five and

fifty hundredths

15 400 + 4 + 0.4 + 0.004 Four hundred four, four hundred and forty

thousandths

#### 2 Circle the greatest number:

**1** 27.03

270.3 . 2.703

**2** 56.38 . 56.038 . 560.38

**3** 180.06 . 18.006 . 180.60

4 900.900 , 900.090

, 900.009

#### 3 Circle the smallest number:

1 100.50 . 105.05 . 150.05

**2** 900.25 . 90.025 . 902.05

**3** 1,000.02 , 100,200 ,

100.002

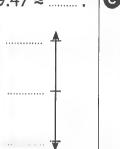
8.237 .

80.237 , 802.037

#### 4 Round each of the following using the midpoint strategy:

1 To the nearest whole number:







**d** 99.87 ≈ ......



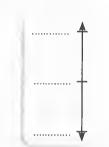
To the nearest Tenth:







6 56.874 ≈ ......



To the nearest Hundredth:











4 To the nearest Thousandth:





**©** 0.9999 ≈ ......



	Downal analy of	the fellowine	numbers.	union the	rounding	rulo etrate	2011
0	Round each of	the following	IIIIIInc 2	using the	rounding	Tuic strate	-93

1 To the nearest whole number:

2 To the nearest Tenth:

3 To the nearest Hundredth:

4 To the nearest Thousandth:

6 Complete the following:

(To the nearest 
$$\frac{1}{1.000}$$
)

$$9$$
 56.234 ÷ 10 =  $\approx$  (To the nearest two decimal places)

7	Choose	the	correct	answer	•
	CHOOSE	uie	COLLECT	aliswei	

1 56.73 < ...... (56.69 @ 56.8 @

(56.69 **o** 56.8 **o** 56.075 **o** 56.729)

2 98.25 > .....

(100.05 • 98.52 • 98.263 • 98.205)

**3** 56.5 X 10 565 ÷ 10

 $(<\mathbf{op}=\mathbf{op}>\mathbf{op}\leqslant)$ 

4 0.32 X 10 3.2 ÷ 10

 $(<\mathbf{or}=\mathbf{or}>\mathbf{or}\leqslant)$ 

**5** 56 < ...... < 57

(562 @ 57.3 @ 5.6 @ 56.02)

6 .....≈ 2.5 (To the nearest 0.1)

(2.445 @ 2.456 @ 0.536 @ 2.05)

**7** .....≈ 69 (**To the nearest whole number**)

(69.5 or 68.4 or 68.369 or 69.45)

**8** 56.298 ≈ 56.30 (**To the nearest** )

(100 or 10 or 0.01 or whole number)

**9** 63.245 ≈ 60 (**To the nearest** .....)

(0.01 **a** 0.1 **a** 10 **b** whole number)

**10** 56 + 0.02 + 0.007 ≈ ...... (**To the nearest two decimal places**)

(56.2 **o** 56.3 **o** 56.02 **o** 56.03)

#### 8 Arrange the following numbers:

**1** 56.25 , 56.52 , 56.025 , 56.502 , 56.052

(Ascendingly)

**2** 6.005 , 5.006 , 50.06 , 60.05 , 5.060

(Descendingly)

## Assessment on Lessons 5&6

#### Choose the correct answer:

1 45 + 0.5 450 + 0.05

**a** <

**C** =

**(1)** <

2 .....≈ 75.3

**a** 75.03

**b** 75.39

**©** 750.3

(To the nearest Tenth) 75.34

78.098 ≈ ......

(To the nearest whole number)

**a** 78.1

**C** 79

**a** 7

(To the nearest Hundredth)

(To the nearest .....)

**4** 68.567 ≈ 68.57

a whole number **b** Tenth

C Hundredth

**1** Thousandth

≈ 20.02 **a** 20.002

20.024

**C** 0.025

**©** 20.200

#### **Second:** Round the following numbers:

#### Third: Compare using (<, = or >):

1 40.02 400 + 2

2 50.600 5.006

**3** 500 + 90 + 3 + 0.8 + 0.07 593.87

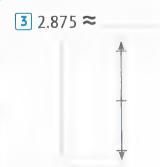
4 300.03 Three hundred and three tenths

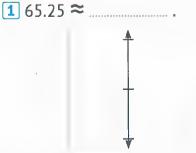
**5** 25 + 0.03 + 0.008

Twenty-five and eighty-three hundredths

#### Fourth: Label the midpoint of the number line. Place the given decimal number at its proper location, and then round:

2 80,958 ≈ ......





To the nearest whole number. To the nearest Tenth. To the nearest Hundredth.

# Assessment On Concept

499699111611		concept	U
First Complete the	following:		
1 Five milliard, five million, five	e hundred thousar	nd and five thous	andths
=			(In digits)
The smallest decimal number	r that can be form	ed from the digit	s (9,8,0,5,7)
up to the Hundredths is	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
<b>3</b> In 8,567.4 <b>9</b> 1, the place value	of 9 is hundredth	s and its value is	
4 The value of 586.47 is increa	sed when multipl	ying by 10 to	
5 458.025 ≈		(To ti	ne nearest Tenth)
Second Choose the co	rrect answer:		
1 The greatest decimal numbe		ed from the digit	cs (8,5,9,0,7)
is		2	,
<b>a</b> 89,750 <b>b</b> 9,87			-
The value ofis		lividing by 10 to	75.2.
<b>a</b> 7,520 <b>b</b> 7.52		52	<b>d</b> 75.200
3 4,000 + 40 + 0.4 + 0.04 =			
<b>a</b> 4,040.44 <b>b</b> 44.4	.4	144.04	<b>d</b> 4,400.40
<b>4</b> ≈ 75.60 <b>a</b> 75.694 <b>b</b> 75.6	07		arest Hundredth)
		75.599	<b>d</b> 75.697
Compare using			
247.100	2 45.25		
4 20.05 20 + 0.05	5 1,000 + 50 + 0	.2 + 0.008	1,500.280
Fourth: Match:			
1 Three thousand and three t	nousandths =		<b>a</b> 0.15
2 150 thousandths =			<b>5</b> 3,000.003
3 400 + 20 + 0.1 + 0.008 =	•••••••••••••••••••••••••••••••••••••••		<b>©</b> 20
<b>4</b> 45.95 X 10 =	(To the nearest H	lundredth)	<b>d</b> 420.108
	(10 the hearest n	unureum)	<b>e</b> 459.5

## Answer the following:

Mazen is planning a trip from Cairo to El Fayoum. He will travel **147.72** kilometers. Round the distance to the nearest whole number.

## 1.2 Adding and Subtracting Decimals

## Exercises on Lessons 7-9

Estimating Decimal Sums, Modeling Decimal Addition & Thinking Like a Mathematician

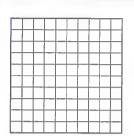
#### Estimate the sum of each of the following:

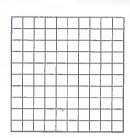
1 Using rounding to the nearest Tenth strategy:

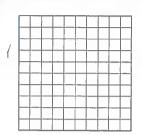
2 Using benchmark decimals strategy:

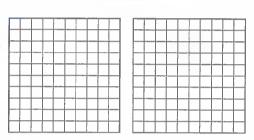
3 Using Front-End Estimation strategy:

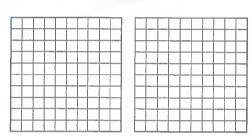
#### 2 Add using the decimal model:











#### 3 Add using the place value table:

	ısand			nes		Point			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
	,								

	ısand			nes		Point	D C C III I I I I		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths
						•			

Thousands			Or	nes		Point		Decimal	S
undreds Te	ens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths
		now open one men							
		- new right late from							

4 69,586.35 + 892 .9 = ......

Thou	ısand	S	Oı	nes		oint		Decimal	S
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal P	Tenths	Hundredths	Thousandths
						-			

**5** 69,245.7 + 36.578 = ......

Thou	ısand	S	Oı	nes		oint	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	imal F	Tenths	Hundredths	Thousandths
						Dec			

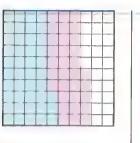
#### 4 Find the result:

 1
 56.458
 2
 483.258
 3
 82.025
 4
 0.369

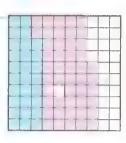
 +
 7.58
 +
 736.27
 +
 129.975
 +
 +
 12.57

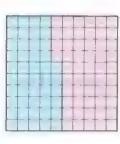
- 5 56.367 + 56,246.34 = ......
- **6** 56.31 + 8,000.249 = .....
- 7 39.56 + 245.36 = .....
- 8 638.47 + 56,324.98 = .....

### Write an expression to match the following models, and write an addition problem, then find the result:

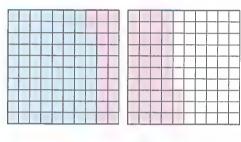


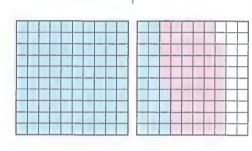












#### 6 Complete the following:

1 7 Thousandths + 8 Thousandths = ............ Thousandths.

Place value: Hundredths, Thousandths.

2 45 Thousandths + 15 Thousandths = ...... Thousandths.

Place value: Hundredths, Thousandths.

3 456 Thousandths + 265 Thousandths = ...... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

4 5 Hundredths + 68 Thousandths = ........... Thousandths.

5 15 Hundredths + 28 Hundredths = ...... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

6 3 Tenths + 28 Thousandths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

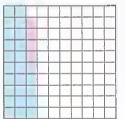
#### 7 Complete the following:

- 4 The estimate of the sum of 56.36 + 57.63 using rounding to the nearest 0.1 strategy is ......
- 5 The estimate of the sum of 7.59 + 3.89 using Front-End Estimation
- 6 15 Hundredths + 37 Hundredths = ...... Hundredths.
- 7 5 Tenths + Hundredths = 560 Thousandths.
- **8** 45.36 + ..... = 57.79
- 9 0.45 + = 1

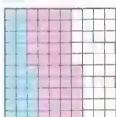
 $1000.2 + 0.5 + \dots = 2$ 

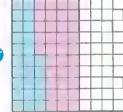
#### 8 Choose the correct answer:

f 1 The model representing the addition problem 0.25 + 0.4 is ...............



Of





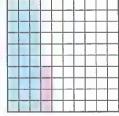
**O** 



The model representing the addition problem 0.3 + 0.4 is ......



or



O



or



The addition problem that represents the opposite

 $(0.58 + 2.5 \odot 5.8 + 0.25)$ 

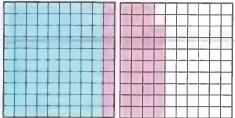




4 The addition problem that represents the corresponding model is



$$(0.09 + 0.48 \odot 0.9 + 0.48)$$



- 5 The benchmark decimal closest to 0.45 is .................. (0 @ 0.5 @ 1 @ 1.5)
- 6 The benchmark decimal closest to 2.01 is .................. (1 @ 1.5 @ 2 @ 2.5)

- 9 0.7 + 1.2 + ..... = 2

 $(1.9 \odot 1.1 \odot 0.1 \odot 0.3)$ 

10 0.256 + ..... = 1

(0.854 @ 1.744 @ 0.8 @ 0.744)

#### 9 Answer the following:

1 Malak wants to cycle 40 km in a week. By Thursday, Malak had covered 34.99 km, and on Friday she had covered 4.01 km.

Did Malak achieve her goal or not? (Show your answer)

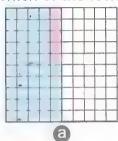
- 2 A merchant bought 953.543 kilograms of fruit. The next day, he bought 240,615 kilograms. Estimate the total amount bought by the merchant in the two days. Use the strategy of rounding to the nearest 0.1.
- Fayrouz has 5 meters of fabric. If she needs 3.75 meters to make a dress, and 1.23 meters to make pants, estimate the length of the fabric that Fayrouz needs. Use the strategy of rounding to the nearest whole number. Is the fabric that she has enough or not?

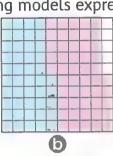
## Assessment on Lessons 7-9

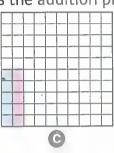
#### First Choose the correct answer:

- 1 The expression that expresses the corresponding model is
  - $\bigcirc$  0.28 + 0.15
- $\bigcirc$  2.8 + 1.5
- $\bigcirc$  2.8 + 0.15
- 0.28 + 1.5

- 2 Which of the following models expresses the addition problem 0.45 + 0.5?









- **3** 5.25 + 32.7 = ......
  - **a** 37.92
- **6** 8.52
- **©** 85.2
- **d** 37.95

- 4 0.75 + ..... = 1

  - **a** 1.25 **b** 0.25
- **©** 0.35
- **a** 1.75

- **5** 65.5 + 5 = ......
  - **a** 66
- **b** 70.5
- 65.55
- 655.5

#### Second: Complete the following:

- 1 The estimated sum of 4.6 + 5.3 using rounding to the nearest whole number
- The estimated sum of 6.12 + 3.28 using rounding to the nearest Tenth strategy
- 3 4 Hundredths + 27 Thousandths = ...... Thousandths.
- 4 452.8 + 2.782 = ......
- **5** ..... + 0.62 = 1

#### Third Match:

- 1 3.5 + 2.5
- $\boxed{2} 0.35 + 0.25 = \dots$
- $30.35 + 2.5 = \dots$
- 4 3.5 + 0.25 =
- 5 35 + 25 = .....

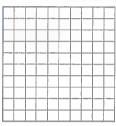
- **a** 0.6
- **3** 2.85
- **6**
- 60
- **a** 3.75

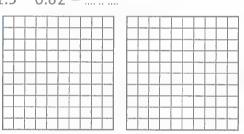
## Exercises on Lessons 10-13

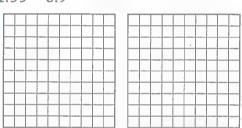
Subtracting Decimals, Estimating Decimal Differences, Subtracting to the Thousandths Place & Decimal Story Problems

#### Subtract using the decimal model:









#### 2 Subtract using the place value table:

	sand			nes		. Point			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths

Thousands		Ones			Point	Decimals			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths
						•			

3 45.369 - 9.98 = ......

Thou	sand	5	O	nes	- Live	Point	Decimals		S
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
						•			

4 56.023 – 9.88 = .....

Thou	ısand	S	01	nes		l Point	Decimals		S
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths
						•			
		ļ							

**5** 1,250 – 889.56 = .....

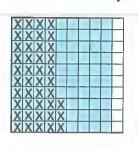
Thou	isands	S	O	nes		Point:		Decimals	
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
						٠			

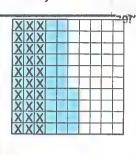
**6** 56,025.35 – 9,258.9 = ......

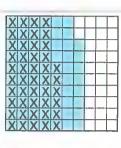
Thousands			Ones		Point	Decimals			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

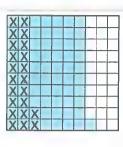
#### 3 Find the result:

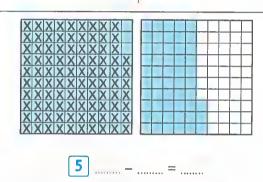
### Write an expression to match the following models, and write the subtraction problem, then find the result:

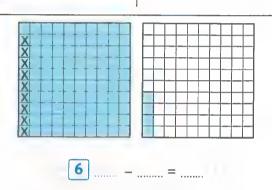












#### Estimate the difference of each of the following:

1 Using rounding to the nearest Tenth strategy:

**a** 75.02 – 27.18  **6** 9.235 - 5.2

© 25,152.24 – 105.45 ..... = .....

**d** 45.258 – 7.39

**e** 56.321 – 9.8

**1** 765.3 – 7.589

..... – ..... = .......

2 Using benchmark decimals strategy:

**a** 0.99 – 0.51

**b** 25.01 – 3.45

**©** 8.9 – 2.001

..... – ..... = .......

..... – ..... = ......

**1**.98 – 0.53

**e** 7.01 – 0.65

..... – ..... = .......

 $\bigcirc$  15.01 - 7.96

**3** Using Front-End Estimation strategy:

<b>a</b>	315.	36 -	89.65

**3.49** – 2.04

6 Complete the following:

1 79 Thousandths – 15 Thousandths = ...... Thousandths.

Place value: Hundredths, Thousandths.

2 82 Thousandths – 47 Thousandths = ..... Thousandths.

Place value: Hundredths, Thousandths.

3 620 Thousandths – 174 Thousandths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

4 14 Hundredths – 37 Thousandths = \_\_\_\_\_ Thousandths.

Place value: Tenths, Hundredths, Thousandths.

5 63 Hundredths – 18 Hundredths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

6 5 Tenths – 24 Thousandths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

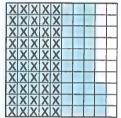
7 Complete the following:

4 The estimate of 9.99 – 7.58 using the benchmark decimal strategy is \_\_\_\_\_.

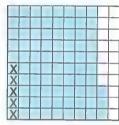
- 6 75 Hundredths 9 Hundredths = ...... Hundredths.
- 7 Tenths ...... Hundredths = 650 Thousandths.
- **8** 963.16 .... = 56.35
- 9 1 ..... = 0.45
- **10** ..... 12.5 = 35.73

#### 8 Choose the correct answer:

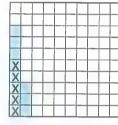
1 The model representing the subtraction problem 0.83 – 0.5 is ......



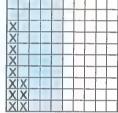
0



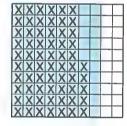
**o** 



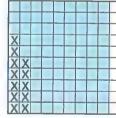
Or I



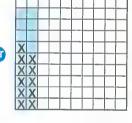
2 The model representing the subtraction problem 0.8 – 0.65 is ......

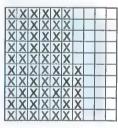


Oï



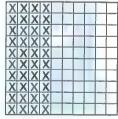
Or





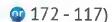
The subtraction problem that represents the

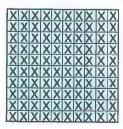
opposite model is ...... (0.83 – 0.4 **o** 8.3 – 0.4

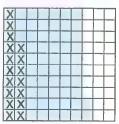


- **o** 83 40 **o** 0.83 0.04)
- The subtraction problem that represents the opposite model is ..............

(1.72 – 0.17 🕶 1.72 – 1.7 🕶 1.72 – 1.17







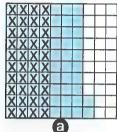
- o T  -	Number Sense and Operations	
	5 The estimate of 78.089 – 5.247 us	sing rounding to the nearest 0.01
	strategy is	(72.84 <b>o</b> 72.842 <b>o</b> 72.9 <b>o</b> 65
	6 The estimate of 25.368 – 5.247 us	sing rounding to the nearest 0.1
	strategy is	(20 or 20.2 or 20.12 or 25.121
	7 The estimate of 86.25 – 14.89 usi	ng rounding to the nearest whole
	number strategy is	(71.36 <b>o</b> 71.4 <b>o</b> 71 <b>o</b> 70
	8 3 Tenths – 15 Thousandths =	Thousandths.
		(2.85 @ 285 @ 0.15 @ 0.285
	9 12.78 = 8.8	(3.98 <b>or</b> 21.58 <b>or</b> 11.9 <b>or</b> 13.66
[	10 1 = 0.214	(786 <b>o</b> 0.786 <b>o</b> 1.214 <b>o</b> 0.213
9	Answer the following:	l le cht e seférentes for 7520 3
L		le bought a refrigerator for <b>7,520.2</b>
		or <b>5,640.5</b> pounds. How many pound
	does Mohamed have left?	
l		which the train traveled a distance of
	239.47 km. What is the remaining	g distance from the road?
Į		per day. If he drinks 0.5 liters in th
		now many liters of water does he drin
	in the evening?	

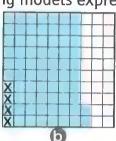
## Assessment on Lessons 10-13

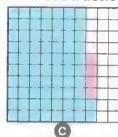
#### **Choose the correct answer:**

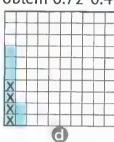
- - **a** 0.42 0.27
- $\bullet$  4.2 2.7
- $\bigcirc$  4.2 0.27
- $\bigcirc$  0.42 2.7

- 2 Which of the following models expresses the subtraction problem 0.72-0.4?









- 7.15 2.6 = .....
  - **a** 4.55
- **6** 9.75
- **G** 6.09
- **@** 7.41

- **4** 1 ..... = 0.47
  - **a** 1.47
- **b** 1.53
- **©** 0.53-
- **(d)** 0.47

- 5 8 0.45 = .....
  - **a** 8.45
- **6** 8.55
- **C** 7.45
- 7.55

#### Second: Complete the following:

- 1 The estimated difference of 4.2 1.8 using rounding to the nearest whole number strategy is ......
- 2 The estimated difference of 18.46 7.25 using rounding to the nearest Tenth
- 3 5 Hundredths + 35 Thousandths = ....... Thousandths.
- 4 32.7 + 2.079 = .....

-0.47 = 0.53

#### Third: Match:

- **1** 15.2 5.2 **2** 1.52 0.52 **3** 15.2 0.52 **4** 152 5.2 **5** 152 52

- **a** 1
- **1**0
- **©** 100
- **14.68**
- **(2)** 146.8

#### Fourth:

Emad caught three fish whose lengths were 29.28 cm, 29.255 cm, and 35.17 cm. What is their total length? What is the difference between the longest fish and the shortest fish?....

# Assessment On concept

#### **First** Complete the following:

- 1 The estimated difference of 6.527 0.293 using rounding to the nearest Tenth strategy is ......
- 7 Hundredths + 24 Thousandths = Thousandths.
- **3** 45.25 + = 90.5
- 4 59.126 42.35 =
- 5 Tenths 5 Thousandths = ...... Thousandths.

#### Second Choose the correct answer:

- 1 The expression that expresses the corresponding model is
  - **a** 0.5 0.27

0.5 - 2.7

 $\bigcirc$  0.5 + 0.27

- $\bigcirc 0.5 + 27$
- The expression that expresses the corresponding model is ......
  - $\bigcirc$  22 + 30

0.22 - 0.03

 $\bigcirc$  2.2 + 3.0

- $\bigcirc$  0.22 + 0.30
- <u>3</u> ..... 2.45 = 0.55
  - **a** 3

50

**©** 300

@ 0.10

- - **a** 8.912
- **6** 200
- **©** 20

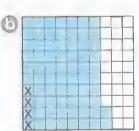
- **Q** 2
- 5 3 Tenths 33 Thousandths = ...... Thousandths.

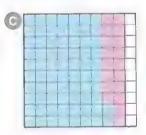
- 0.267
- **6** 267

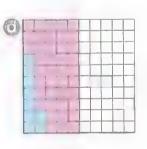
- **Q** 2.67
- @ 26.7

#### Match each model to its expression:









- 1 0.72 0.04
- 2 0.42 0.32
- 3 0.09 + 0.41
- |4| 0.72 + 0.18

#### Answer the following:

Emad had 56.5 pounds. He bought a pen for 12.25 pounds and a notebook for 15.5 pounds. How much money does Emad have left?

## **Number Relationships**

## 2.1 Expressions, Equations and the Real World

## Exercises on Lesson

**Expressions, Equations, and Variables** 

1 Choose the correct answer:
1 45 + y - 2.5 is a/an
(variable of mathematical expression of equation of other)
2 25 + 5.7 X 2 is a/an
(variable of mathematical expression of equation of other)
3 "Ahmed sleeps 7 hours a day." is a/an
(variable or mathematical expression or equation or other)
4 12 + 3.7 = y is a/an
(variable on mathematical expression on equation on other)
5 8 + x - 7 = 6.7 is a/an
(variable of mathematical expression of equation of other)
6 "The largest 3-digit number is 999." is a/an
(variable on mathematical expression on equation on other)
7 "Walaa has 1.25 kg of pistachios." is a/an
(variable or mathematical expression or equation or other)
8 The equation that represents "12.5 plus a number equals 15." is

 $(15 - x = 12.5 \odot 15 + x = 12.5 \odot 12.5 + x = 15 \odot 12.5 + 15 = x)$ 

THEME(1) Number Sense and Operations
9 The equation that represents "a minus 12 equals 7.5." is
$(a - 12 = 7.5 \odot 12 - a = 7.5 \odot 7.5 - a = 12 \odot 12 - 7.5 = a)$
10 In the equation $45 - \mathbf{m} = 25$ , if $45$ represents the number of students in
one of the classes and 25 represents the number of girls in this class,
then the variable <b>m</b> represents the
(number of girls on number of boys on number of students
onumber of teachers)
11 In the equation $75 - 56.3 = y$ , if $75$ represents the money that Yassin owns,
and 56.3 represents the money he spent, then the variable y represents
40-40-60-60-60-60-60-60-60-60-60-60-60-60-60
(the money with him now of the money he spent of the money he got,
of the money that was with him first)
12 Adel is comparing the height of two plants in the garden using this
equation: $92.5 - n = 45.5$ , where $92.5$ is the height of one of them, then
the variable <b>n</b> in this equation represents
(the difference between the height of the two plants,
the sum of the height of the two plants,
• the height of one of the plants • Adel's height)
13 The equation $36.5 + 2.15 = \mathbf{m}$ is similar to the equation
$(36.5 = y + 2.15 \odot y + 36.5 = 2.15 \odot 36.5 - y = 2.15 \odot 2.15 + 36.5 = y)$
14 If the dimensions of a rectangle are 5.5 cm and 7.2 cm, then the variable
"p" in the equation $7.2 + 5.5 + 7.2 + 5.5 = p$ represents the
(length @ width @ perimeter @ area)
15 Huda bought a pen for 12.5 pounds and a ruler for 3.25 pounds. The

equation that represents what Huda paid is \_\_\_\_\_\_.

 $(3.25 + b = 12.5 \odot 12.5 + b = 3.25 \odot 12.5 - b = 3.25 \odot 12.5 + 3.25 = b)$ 

# 2 Read the following story problems. Make an equation for each problem:

1 Hazem has 125 pounds. He bought books for 65.5 pounds.	
What is the remaining money with Hazem?	

- 2 A classroom in a school has 21 girls and 15 boys. How many students are there in this class?
- 3 A cattle farm has 90 cows and 75 buffaloes. What is the difference between the number of cows and buffaloes?
- 4 Mazen is 145 cm tall and his brother Fouad is 20 cm taller than him. How tall is Fouad?
- 5 Two numbers whose sum is **255** and one of them is **107.5**. What is the other number?

#### 3 Match:

- 1 The difference between 5.5 and 3.7
- 2 The sum of **5.5** and **3.7**
- 3.7 plus a number equals 5.5
- 4 5.5 minus a number equals 3.7
- 5 A number minus 3.5 equals 3.7

**a** 
$$3.7 + 5.5 = y$$

**b** 
$$3.7 + a = 5.5$$

$$\mathbf{C} \mathbf{m} - 3.5 = 3.7$$

**3.7** 
$$= x$$

# Assessment on Lesson 1

**d** a + 12.5 = 18.5  $\bigcirc$  12.5 + a = 18.5

First: Cho	ose the correc	t answer:		
1 5 + x + 3 is	·			
a a variable	<b>b</b> a mathemati	cal expression <b>©</b> a	n equation	<b>d</b> other
27 + 5 = m + 3 is.				
a variable	<b>(b)</b> a mathemati	ical expression <b>©</b> a	n equation	<b>6</b> other
3 In the equation 4	45 + x = 86, if 86 i	represents the numb	er of student	ts in one of
the classes and	<b>45</b> represents the	number of boys in t	his class,	
x represents	P			
a the number of	of girls	<b>b</b> the numbe	r of boys	
<b>©</b> the number of	of students	d the numbe	r of teachers	
4 Hussam compare	ed the lengths of	two of his colleague	s and wrote 1	this equation:
1.52 - 1.25 = y, t	the letter <b>y</b> repres	ents		
a the height of	one of his collead	gues		
<b>b</b> the sum of the	ne height of his co	lleagues		
C the difference	e between the he	ights of his colleagu	es	
d the height of	Hussam			
5 The equation that	represents the diffe	erence between <b>4.25</b> a	nd <b>3.79</b> is	. 1
am = 3.79 + 4.3	25 <b>b</b> m - 3.79 = 4	4.25 <b>©</b> m – 4.25 =	3.79 <b>@</b> m	= 4.25 - 3.79
	(✓) for the cor ement:	rect statement	and (X) for	the wrong
$1 \mathbf{x} + 5 = 7.8$ " is ca	lled a mathemati	cal expression.		( )
<b>2</b> "4 + 5 = 12 - 3" i	s called an equati	ion.		( )
In the equation a	a = 2.5 + 8.7, the v	ariable <b>"a</b> " represent	s the differer	nce between
<b>8.7</b> and <b>2.5</b> .				( )
4 The equation 4.5	5 + 6.25 = x is the	same as the equation	on 6.25 + 4.5	= <b>y</b> . ( )
5 The equation the	at represents "12.	5 plus a number equ	ıals 15"	
is 12.5 + b = 15.				. (
Third: Mato	ch:			
1 The difference	between 18.5 and	12.5	<b>a</b> a = 1	8.5 + 12.5
The sum of 18.5	and 12.5			8.5 – 12.5
3 12.5 <b>plus</b> a num	ber equals 18.5		<b>©</b> 18.5	- a = 12.5

4 18.5 minus a number equals 12.5

5 A number **plus** 12.5 equals 18.5

### Exercises on Lessons 2-4

# Variables in Equations, Finding the Unknown & Telling Stories with Numbers

A	I loo montal math to	actimate the counties	ns, and then solve them:
	USE mental matrice	esumate the equation	is, and then solve them.

$$1 2.45 + n = 5.24$$

$$y - 12.40 = 3.01$$

$$38.5 - m = 4.25$$

$$|\mathbf{4}| 8.12 + \mathbf{x} = 20$$

$$\boxed{6}$$
 2.377 + 3.1 = 1.52 +  $\boxed{a}$ 

$$763 - 15 = p + 10$$

#### n = .....

#### 2 Complete the following:

1 If 
$$2.5 + 3.5 + y = 16$$
,

$$2$$
 if  $x + 15.2 = 14.5 + 15.5,$ 

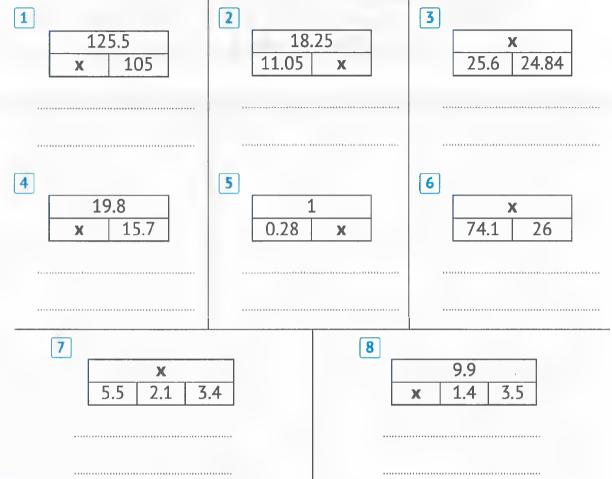
3 If 
$$95 - 65.27 = z - 29.73$$
,

4 If 
$$10.5 - 2.5 = a - 8$$
,

6 If 
$$b = 3.25$$
,

8 If 
$$r = 32.5$$
,

3 Write an equation that expresses each of the following bar models, then find the value of the variable "x":



4 Choose the correct answer:

1 If 
$$63.5 + \mathbf{m} = 108.5$$
, then  $\mathbf{m} = ....$  (45 or 172 or 45.5 or 171.5)

2 If 
$$75.5 - x = 15.5$$
, then  $x = .....$  (91 or 60 or 90.1 or 60.5)

5 If 
$$\mathbf{w} - 12.5 = 8.5 - 3.5$$
, then  $\mathbf{w} = \dots$  (17.5 or 4 or 7.5 or 9)

1	11	3	On	11	3	<b>O</b>	)	(		11	3	١
1	х	3.5	•	8	Х	•	3.5	11.3	•	Х	8	1

7	The bar model t	that expresses t	he equation s	12-50:6	
	The bal model (	ınat expresses t	ne equation s –	1.2 = 0.8 15	



8 The bar model that expresses the equation m - 6.5 = 15.5 is ......

1	n	n	<b></b>	6.	.5	<b>@</b>	15	5.5		n	n	١
1	6.5	15.5		15.5	m	9	m	6.5	•	6.5	9.5	

9 The equation that expresses the corresponding bar model is ......

3.	.8
У	2.7

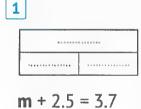
$$(y + 2.7 = 3.8 \odot y - 2.7 = 3.8 \odot y - 3.8 = 2.7 \odot y + 3.8 = 2.7)$$

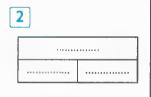
10 The equation that expresses the corresponding bar model is .....

	ν	V
4	1.8	2.5

$$(w + 2.5 = 4.8 \text{ or } 4.8 - w = 2.5 \text{ or } w = 4.8 - 2.5 \text{ or } w - 2.5 = 4.8)$$

Express each of the following equations using the bar model, and then solve the equation:









$$m + 2.5 = 3.7$$

$$u - 3.75 = 9$$

$$9.8 - \mathbf{v} = 6.7$$

$$9.1 + 2.7 = s$$

- Write an equation to represent the story problems using (n) as the variable and find its value. Use the bar models.
- 1 The distance between Cairo and Alexandria via the agricultural road is 225 km. Damanhour is located on the agricultural road, 61.3 km from Alexandria. How far is the distance between Damanhour and Cairo?



The sum of the height of the school building and the height of a tree adjacent to the building is 28.7 m. If the height of the school building is 20.5 meters, find the height of the tree.
3 If Ahmed weighed 40.7 kg two years ago and his weight increased by
6.9 kg, what is Ahmed's weight now?
7 Write a story problem representing each equation, and then solve it:
1 $9.25 + 2.75 = m$
·
$2 \times -125 = 45.8$

• THEME Number Sense and Operations

# Assessment on Lessons 2-4

#### First: Choose the correct answer:

- 1 If 78.45 + y = 90, then  $y = \dots$ .
  - **a** 78.45
- 6 90
- **©** 168.45
- **d** 11.55

- $\boxed{2}$  If  $12 \mathbf{m} = 5.125$ , then  $\mathbf{m} = \dots$ 
  - **a** 12

- **5.125**
- **17.125**

- 3 If 2.5 + 3.4 + x = 7, then x = ...
  - **a** 2.5 + 3.4 + 7
- **b** 7- 2.5 + 3.4 **c** 7 (2.5 + 3.4)
- $\bigcirc$  (7 + 2.5) 3.4

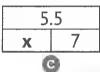
- 4 If 5.4 + 2.6 = c 1.9, then  $c = \dots$ 
  - **a** 6.1

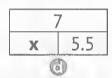
6 8

- **3** 7.3

7	7
Х	1.5
6	

)	(
7	5.5
C	



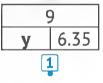


#### Second: Complete the following:

- 1 If 8.5 + y = 15, then y = ...
- 2 If 2.125 z = 6.782 6.75, then z = ...
- 3 If  $\mathbf{m} = 3.25$ , then  $\mathbf{m} + 3.275 = \dots$
- 4 The value of x in the bar model is ......
- The equation that expresses the bar model is ......
- 8.005 4.08 17
  - 2.35 У

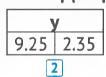
#### Third:

#### Match each model to the appropriate equation:

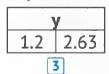


	a		
_	-	_	

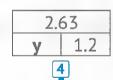
			C			
У	=	1.	2	+	2.	.63



y = 9.25 - 6.35



y = 2.63 - 1.2



#### y = 2.63 + 1.2

#### Fourth:

Ezz ran 3 days last week, he ran 5.24 km on Monday and 6.50 km on Wednesday. If the total distance he ran during the week is 15 km, what is the distance he ran on Friday? Write an equation to represent the problem, use (m) as the variable and find its value. Use the bar model.

# Assessment On concept

#### Choose the correct answer:

- 1 2.15 + x = 9.25 is
  - a a variable b a mathematical expression c an equation d other
- 2 If 28.45 y = 15.05, then  $y = \dots$ 
  - **a** 13.40
- **b** 43.50

- **C** 28.45
- **d** 15.05
- In the equation 38.50 + x = 80.25, if 80.25 represents the amount that Hossam owns and 38.50 represents the amount remaining with him, then x represents
  - a the amount he owns

the amount he has left

c the amount he spent

- **O** other
- - **a** m = 6.35 + 3.14 **b** m 3.14 = 6.35 **c** m 6.35 = 3.14 **d** m = 6.35 3.14

2.	.6
Х	4
(8	

)	<
2.6	1.4
•	

1.	.4
Х	2.6

2	.6
Х	1.4
(	3)

#### Complete the following:

- 1 If 8.5 y = 1.5 + 6.5, then  $y = \dots$
- 2 If 5.52 + 2.01 + x = 9.21, then  $x = \dots$
- 3 If m = 3.01, then  $m 0.5 = \dots$
- $\blacksquare$  Using the equation f + 0.28 = 9.07, complete the corresponding bar model.



9.5

Einer-		

Put (✓) for the correct statement and (✗) for the wrong statement:

1 "x + 3.2 = 1.2 + 7.8" is called a variable.	( )

The equation 
$$7.2 + 1.05 = x$$
 is similar to the equation  $1.05 + 7.2 = y$ .

3 If 
$$5.63 - m = 2.15$$
, then  $m = 5.63 + 2.15$ .

The equation that represents the difference between 18.5 and 12.5 is 
$$z - 18.5 = 12.5$$
.

5 The equation that represents the corresponding bar model is 9.05 + w = 11.35.

11.	.35		
9.5	W	] (	,

Fourth: Wri

Write the equation that represents each bar model, and then solve it:

1

30.258		
15.27	m	

2

у		
3.05	4.123	

3

9.2	53
х	6.7

Fifth:

#### Answer the following:

1 Bassem bought **two** watermelons with a total mass of **2.64 kg**. If the first watermelon had a mass of **1.36 kg**, what is the mass of the second watermelon? Write an equation to represent the problem, use (**m**) as the variable and find its value. Use the bar model.

	**********

2 Write a story problem representing the following equation and then solve it:  $\mathbf{w} = 9.2 - 5.025$ 

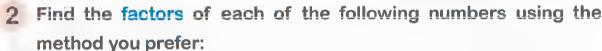
# 2.2 Factors and Multiples

# Exercises on Lessons 5 & 6

#### **Finding Factors & Prime Factorization**

			_					
1	Fill in the	missing	factors	represented	by	the	variables	

t = ...





2 12

3 18

The factors of 8 are:

The factors of **12** are:

The factors of **18** are:

The factors of 24 are:

5 16

6 30

7 42

8 60

The factors of 16 are:

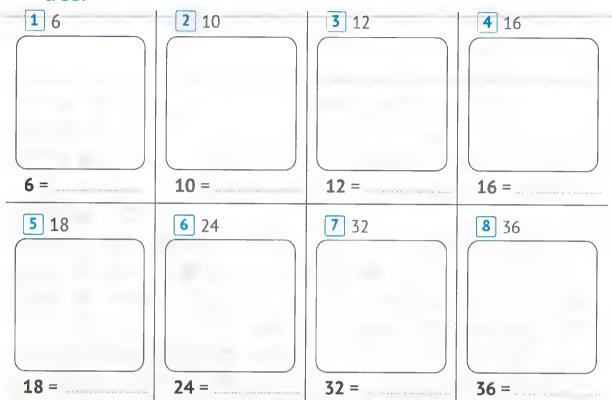
The factors of **30** are:

The factors of 42 are:

The factors of 60 are:



3 Factorize each number into its prime factors using the factor tree:



- 4 Complete the following sentences:
  - 1 The number of factors of a prime number is \_\_\_\_\_\_factors.
  - 2 All prime numbers are odd numbers, except ...... which is an even number.
  - is the smallest prime number.
  - 4 .....is the smallest odd prime number.
  - 5 .....is a number greater than one and has only two factors.
  - 6 The smallest 2-digit prime number is ......................
  - 7 The prime numbers less than 10 are
  - 8 The number of factors of 25 is \_\_\_\_\_ factors.
  - 9 1, 2, 4, 8, 16 are the factors of ......

  - 11 2 is a factor of all numbers whose Ones digit is

13 If the prime factors of a number	are 2 X 3 X 3, then the factors of this
number are	7
14 If the factors of a number are 1,	, 2, 4, 8, then the prime factors of this
number are	
5 Choose the correct answer:	
1is a factor of all number	s. (0 <b>1 1 2 1 3</b> )
	factors. (2 @ 3 @ 4 @ 6)
3is a prime number.	(51 @ 52 @ 57 @ 59)
4 The two numbers 3 and 5 togeth	· · · · · · · · · · · · · · · · · · ·
	(30 @ 25 @ 18 @ 53)
5 The prime number	
	o factors only o has three factors only)
6 is a factor of 24.	(14 <b>o</b> 18 <b>o</b> 17 <b>o</b> 12)
7 The numbers 2, 3, 5, 7 are nu	
	(even @ odd @ prime @ composite)
8 The prime factors of 12 are	(2 x 6 🕶 3 x 4 🕶 2 x 2 x 3 🕶 1 x 12)
	, 3, 6, then its prime factors are
	(1 X 6 1 X 2 1 2 X 3 1 2 X 6 )
10 If the prime factors of a number a	re 2 X 2 X 2, then the number is
	(8 🕶 4 🕶 6 🕶 222)
	t statement, and (X) in front of the
wrong statement:	
17 is a prime number.	(
2 22 is a composite number.	(
3 The prime number whose sum of	
4 The smallest prime number is 1.	
5 All prime numbers are <b>odd</b> numb	
6 4 is a prime number because it h	
7 The smallest even prime number	
8 The smallest odd prime number	
9 2, 2 and 5 are the prime factors of	of <b>10</b> . (

- THEME Number Sense and Operations

# Assessment on Lessons 5&6

2 If the factors of a number are 1, 2, 3, 4, 6, 12, then its prime factors are

6

Choose the correct answer:

1 The number of factors of 16 is .......

First:

**a** 3

	<b>3</b> X 4	<b>G</b> 2 x 6	<b>Q</b> 1 x 12	
The smallest prime	number forme	d from two digits	is	
<b>a</b> 2	<b>b</b> 10	<b>©</b> 11	<b>d</b> 12	
<b>4 4</b> is a factor of				
<b>a</b> 14	<b>b</b> 34	<b>©</b> 22	<b>d</b> 32	
5 The two numbers 2		r are prime factors	of	
<b>a</b> 72	<b>5</b> 14	<b>©</b> 27	<b>d</b> 9	
Second: Match:				
1 Factors of 20			<b>a</b> 2, 3, 5, 7	
2 Prime factors of 20			<b>6</b> 1, 2, 4, 5, 10, 2	20
3 Prime numbers less	than <b>10</b>		<b>©</b> 2, 3, 3	
4 Factors of 18			<b>d</b> 2, 2, 5	
5 Prime factors of 18			<b>©</b> 1, 2, 3, 6, 9, 18	3
All prime numbers a  If a X 9 = 36, then a =  The prime factors of  is a factor of the n  A number whose prince  Fourth: Factorize	=	Ones digit is	ог	ne
factor to	ree:			
1 45	2 32		3 60	
45 =	32 =		60 =	
			Exercise Book	0 47 0

### Exercises on Lesson

#### **Greatest Common Factors (GCF)**

4	Find the greatest common factor	(GCF	) of	each of	the	following
_	I ma the greatest common ractor	100.	, 01	CUOITOI	CITO	10110111119

1	12,	8	
	12	=	 u
	-		


2	Complete the following sentences:
	1 If $y = 2 \times 2 \times 2 \times 2$ , then $y =$ 2 If $d = 3 \times 3 \times 5$ , then $d =$
	The factors of 27 are . 4 The factors of 31 are
	The prime factors of 17 are .
	6 The prime factors of 26 are
	7 The greatest common factor of 3 and 5 is
	8 The greatest common factor of 7 and 14 is
	9 The prime number whose factors sum is 12 is
	10 The first number between 90 and 100 is
3	Choose the correct answer:
	1 The prime factors of 14 are ( 2X7 @ 1X14 @ 1X2X7 @ 2X3X4 )
	2 The prime factors of <b>16</b> are (2X8 @ 2X2X4 @ 4X4 @ 2X2X2X2)
	If the <b>prime</b> factors of a number are 2,3,3, then the factors of this
	number are (1,2,3,3 or 1,2,9,18 or 1,2,3,6,9,18 or 1,3,6,19)
	4 If the <b>prime</b> factors of a number are 2,2,5, then the factors of this
	number are
	The greatest common factor of any two prime numbers is
	(the largest number of the smallest number of one of zero)
	6 The greatest common factor of two numbers, one of which is a factor
	of the other is (the largest number of the smaller number
	or the product of the two numbers or the sum of the two numbers)
	7 The greatest common factor of 28 and 14 is
	The greatest common factor of 11 and 5 is
	9 The common <b>prime</b> factors of two numbers are 2, 2, 3, then the <b>GCF</b> For these two numbers (223 of 7 of 12 of 24)
	(22307012027)
	The <b>common</b> factor of two numbers are 1, 2, 3, 6, then the <b>GCF</b> for

these two numbers is

(36 @ 6 @ 12 @ 16)

# Assessment on Lesson 7

First.	Choose the correct	answer:	
1 The prim	e factors of <b>14</b> are		
<b>a</b> 2	<b>b</b> 2,7	<b>©</b> 1, 2, 7, 14	<b>@</b> 2
2 If the pri	<b>me</b> factors of a number a	re <b>2, 2, 3</b> , then the factor	ors of this number are
		0.42	<b>a</b> 1274612
<b>a</b> 2 X 2		<b>©</b> 12	<b>1</b> ,2,3,4,6,12
The grea	test common factor of any	_	
a the la	argest number	<b>b</b> the smallest	
<b>G</b> 1		d there is no o	common factors
4 The grea	test common factor of 21	and <b>7</b> is	
<b>a</b> 7	<b>b</b> 21	<b>©</b> 28	<b>d</b> 14
	mon <b>prime</b> factors of two	numbers are: 2, 3, 5, the	n the GCF of these two
<b>a</b> 6	<b>b</b> 30	<b>C</b> 10	<b>d</b> 2
Second	Complete the follow	ving sentences:	
1 If n = 2 >	X 2 X 7 then, n =		
2 The fact	ors of <b>23</b> are		
3 The prin	ne factors of 19 are		
4 The grea	atest common factor of 8	and <b>5</b> is .	
5 A prime	number whose factors su	m is <b>6</b> is	
Third:	Find the greatest co	ommon factor for ea	ch of the following:
1 30,20		2 12,48	
30 =		12 =	
20 =		48 =	
GCF =	=	GCF =	=
Fourth			
Find the gr	reatest common factor for	the two numbers (6 X 6	o) and (5 X 8).

### Exercises on Lessons 8 & 9

#### Identifying Multiples & Least Common Multiple (LCM)

#### 1 Circle the multiples of the following numbers:

- **1** 3 --- 2 , 6 , 12 , 14 , 21 , 25 , 30 , 37 , 42
- **2** 6 \_\_\_\_ 0 , 2 , 18 , 21 , 30 , 42 , 52 , 56 , 60
- $\boxed{3}$  10  $\longrightarrow$  5, 15, 10, 25, 35, 40, 50, 95, 100
- **4 5 8** , 12 , 25 , 45 , 59 , 85 , 150 , 551 , 15
- **5 7** ---- 2 , 14 , 27 , 35 , 47 , 49 , 63 , 77 , 81

#### 2 Answer the following:

- 1 a List the first 10 multiples of 3:
  - **6** List the first 5 multiples of 6:
  - The common multiples of 3 and 6 of those you listed: ......
- 2 a List the first 7 multiples of 6:
  - **b** List the first 7 multiples of 4:
  - The common multiples of 6 and 4 of those you listed:
    The least common multiple of the two numbers is
- 3 a List the first 5 multiples of 8:
  - **b** List the first **10** multiples of **4**:
- 4 a List the first 10 multiples of 2:
  - **b** List the first 5 multiples of 6:
  - G List the first 8 multiples of 8:
  - The common multiples of 2,6 and 8 of those you listed:......

#### 3 Find the GCF and LCM for each of the following:

1 8,6

3 15,6

5 18,12

7 28, 14



#### choose the correct answer:

1 .....is a multiple of 9.

- (19 0 6 0 3 0 27) 2 14 is a multiple of ...... (4 **o** 7 **o** 21 **o** 28) The common multiple of all numbers is \_\_\_\_\_.  $(1 \odot 2 \odot 3 \odot 0)$ The LCM of 9 and 6 is (54 @ 36 @ 18 @ 9) 5 The LCM of **8** and **10** is \_\_\_\_\_.  $(10 \odot 80 \odot 8 \odot 40)$ 6 .....is a number that has more than one set of factor pairs (Prime number @ Factor @ Multiple @ Composite number) is the number that is **multiplied** by another number to get the (Prime number @ Factor @ Multiple @ Composite number) 8 Counting by jumping is a way to find the ...... of a number.

(the largest number of the smaller number

(sum of factors of multiples of other)

- of the product of the two numbers of the sum of the two numbers)
- 10 The least common multiple of two numbers, one of which is a factor of the other is ...... (the largest number on the smaller number
  - on the product of the two numbers on the sum of the two numbers)



# Assessment on Lessons 8&9

First	Choose the correct an	iswer:	
1	is a multiple of <b>8.</b>		
<b>a</b> 2	<b>6</b> 4	<b>©</b> 16	<b>d</b> 6
2 24 is a mu	ultiple of		
<b>a</b> 16	<b>b</b> 14	<b>©</b> 8	<b>d</b> 9
3 The comm	n <b>on multiple</b> of all numbers	is	
<b>a</b> 0	<b>6</b> 1	<b>©</b> 2	<b>d</b> 3
4 The LCM	of <b>8</b> and <b>4</b> is		
<b>a</b> 4	<b>6</b> 8	<b>©</b> 16	<b>d</b> 12
5 The LCM	of <b>3</b> and 5 is		
<b>a</b> 8	<b>b</b> 15	<b>©</b> 30	<b>d</b> 45
Second:	Use the following word	ds to complete:	
	(Prime, factor, One, co		
	is a number with more th		
	is a number that is multi		
3 Skip cour	nting is a way to find the	of a number	er.
	is a factor of all numbers.		
5 A	number's only factor pair		
Third.	Find the GCF and LCI	M for each of th	e following:
1 8,16		2 15, 20	
8 =		. 15 =	
16 =		. 20 =	
		CCE	_
			=
LCM =	=	. LCM =	=
Fourth:	Find the LCM for the	numbers 6, 8, a	nd 12.
1 The mult	tiples of <b>6</b> are:, ,		······· 9 ········ 9 ········ 9 ········
2 The mult	tiples of 8 are:,	9	, , , , , , , , , ,
3 The mult	tiples of 12 are:,		· · · · · · · · · · · · · · · · · · ·
4 The com	mon multiples are:	5 LCI	M =

## Exercises on Lesson 10

#### **Factors or Multiples?**

1	Find the	GCF	and	LCM for	each of	the	following:
---	----------	-----	-----	---------	---------	-----	------------

1 12,8	2 6,9
GCF = LCM =	
DCIM =	LCM =
3 16, 20	4 14, 21
GCF =	GCF =
LCM =	
5 6, 15	6 24, 16
GCF =	GCF =
LCM =	
7 45, 30	8 25,15

GCF =

LCM =

2	Answer	the	folloy	vina:
	HIISWEI	uic	TOHO	wiiig.

	Mohamed trains to lift weights every 4 days and trains for tennis every 6 days. After how many days will Mohamed play tennis and lift weights on the same day?
	Omnia has two strips of fabrics. One is 45 centimeters wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?
3	Ola sells baskets of figs each holding 9. She also sells bags of pomegranates, each holding 7. If she sells the same number of each, what is the smallest quantity of each type of fruit that she sold?
4	Two alarms, one of which rings regularly every two hours, and the other rings regularly every 3 hours. If the two alarms rang together at 12 o'clock, at what hour did they ring together for the first time after that?

5	A dealer has 18 kg of oranges and 27 kg of apples. If the dealer wants to divide the oranges and apples into bags of the same mass. What is the largest number of bags for each type of fruit to have bag with the same
	masses? How many kilograms of oranges will each bag contain? How many kilograms of apples will each bag contain?
6	A hospital has 12 doctors, and 28 nurses. Find the largest number of equal groups that can be formed of both doctors and nurses. How many doctors are in each group? What is the number of nurses in each group?
7	Mahmoud wanted to divide 24 pens and 36 notebooks into groups, so that each group contains the same number of tools. What is the largest number of groups that can be formed for each type of tool, so that each group has the same number?
8	Adel goes to the club every 3 days to train for football, and his friend Ahmed goes to the same club every 4 days to train for volleyball.  After how many days do the two friends meet?

# Assessment on Lesson 10

First	Choose the correct	answer:	
1 The GCF	for <b>12</b> and <b>18</b> is		
<b>a</b> 2	<b>6</b> 3	<b>©</b> 6	<b>d</b> 9
2 The LCM	for <b>6</b> and <b>8</b> is		
<b>a</b> 2	<b>6</b> 24	<b>C</b> 48	<b>d</b> 14
3 The number	per of factors of <b>24</b> is	***************	
<b>a</b> 8	<b>6</b> 6	<b>©</b> 3	<b>1</b> 2
4 Which of	the following is a multiple	e of <b>12</b> ?	
<b>a</b> 6	<b>6</b> 3	<b>©</b> 12	<b>@</b> 4
5 Which of	the following is a commor	n multiple of <b>9</b> and <b>6</b>	?
<b>a</b> 3	<b>ⓑ</b> 12	<b>©</b> 27	<b>d</b> 18
Second:	Complete the followi	na sentences:	
	rs of <b>27</b> are	g contented.	
	ples of 6 between 20 and	<b>30</b> are	
	e factors of <b>27</b> are		
	est common factor of <b>18</b> a		
	of <b>12</b> and <b>8</b> is		
Third	Answer the following	<b>1°</b>	
1 Menna is	giving her friends pencils		e sells pencils in boyon
of 8 and e	rasers in boxes of 10. If M	enna wants the same	e number of each what
	imum number of pencils t		
		·····	
***********************			
2 Nour is ma	aking snack bags for an up	coming trip. He has	6 oranges and 12
	Iried fruit. He wants the sr		
left over. V	Vhat is the greatest number	er of snack bags that	Nour can make?
***************************************			

# Assessment On concept 2

1930			
First	Choose the correct ans	swer:	
1 The	number has only <b>two</b>	factors.	
a prime	<b>6</b> composite	<b>©</b> even	odd odd
<b>1, 2, 5</b> an	d 10 are factors of	******	
<b>a</b> 1	<b>6</b> 5	<b>©</b> 10	<b>d</b> 18
3	is a common multiple of :	<b>10</b> and <b>5</b> .	
<b>a</b> 20	<b>6</b> 15	<b>©</b> 5	<b>@</b> 24
4 All the fo	llowing numbers are multiple	_	
<b>a</b> 16	<b>6</b> 24	<b>G</b> 32	<b>d</b> 36
_	est common factor of 12 and		
<b>a</b> 2	<b>6</b> 3	<b>©</b> 6	<b>d</b> 12
~	Complete the following		
1	is a common factor of all	numbers.	
<b>2</b> 40, 25, 15	are multiples of the number		
3	is a common multiple of	all numbers.	
4 The LCM	of <b>15</b> and <b>30</b> is	•	
5 If 40 = 5	<b>x 8</b> , thenis a multiple of	the two numbers	s and
Third:	Put ( ) for the correct statement:	t statement a	nd (X) for the wrong
<b>1 2</b> is an oc	dd prime number.		( )
The GCF	for the numbers 2 and 3 is 3.		( )
The prime	e factors of <b>18</b> are 1, 2, 3, 6, 9,	18.	( )
<b>4 14</b> is the	LCM of <b>2</b> and <b>14</b> . ( )	<b>5</b> 0 and 7 are	e the multiples of <b>7</b> . ( )
Fourth:	Answer the following:	•	
contains the	eed to divide 21 pens and 35 esame number of tools. What or each type of tool? Seens are in each group? How reach group?	is the largest no	umber of groups that can
many p			

# Multiplication with Whole Numbers

Concept

3.1 Models for Multiplication

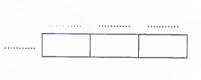
### Exercises on Lessons 2

The Power of Ten & Using the Area Model to Multiply

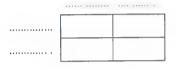
#### 1 Complete the following:

#### 2 Multiply using the area model:





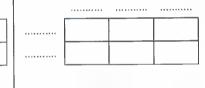
4	4	χ	71	7	=		



	*********	*********

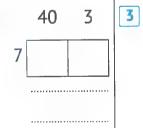


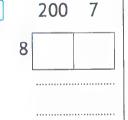




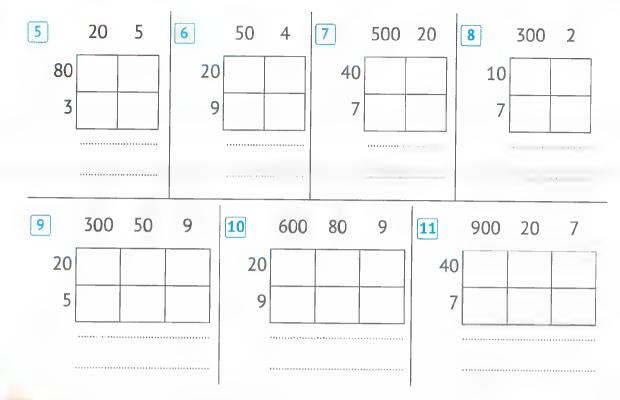
Write the multiplication problem that expresses the following models, and then solve it:

5 2





	400	50	7
9			
• • •	**********		

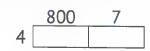


#### 4 Choose the correct answer:

$$(10 \odot 100 \odot 1,000 \odot 0.001)$$

$$(0.06 \odot 0.6 \odot 6 \odot 60)$$

(5 X 915 @ 5 X 183 @ 143 @ 5 X 12)



(4 X 870 o 4 X 807 o 4 X 780 o 4 X 708)

10	The multiplication problem that expresses	the
	corresponding area model is	

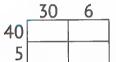
	30	6
20		
7		

(36 X 27 or 63 X 72 or 207 X 306 or 26 X 37)

11 The multiplication problem that expresses the corresponding area model is ......

	300	70	5
10			
9			

(19 X 15 or 19 X 312 or 19 X 375 or 573 X 91)

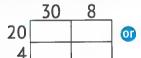


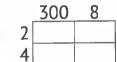


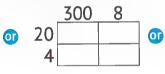


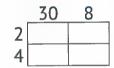


13 The area model that represents 24 X 308 is ...............









14 The area model that represents 67 X 174 is ...............

	1	7	4_
60			
7			

	10	70	40
60			
7			

	100	70	4
60			
7			

or

	100	70	4
60			
7			

15 The multiplication problem that expresses the corresponding area model is .......

600	90
40	6

(690 X 46 @ 640 X 96 @ 23 X 32 @ 203 X 32)

#### 5 Answer the following:

- 1 Hazem bought 7 books, the price of each book is 10 pounds.

  Find what Hazem paid.
- Mona saves 100 pounds every month.

  How much does Mona save in 5 months?
- 3 Amr bought 4 suits, the price of one suit is 10,000 pounds. Find what Amr paid.
- 4 A box contains 200 balls. How many balls are in eight similar boxes?

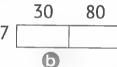


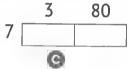
# Assessment on Lessons 1&2

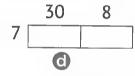
#### First: Choose the correct answer:

#### The model that expresses the following multiplication problem 7 X 308 is ...........

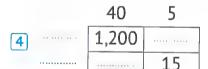
	300	8
7		
	a	







#### Second: Complete the following:



			5
5	**********	*********	350
	5	200	

#### Third. Match:

- **a** 40
- **6** 4,000
- **G** 400
- **d** 40,000
- **6** 400,000

#### Fourth: Answer the following:

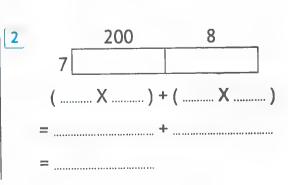
Aya ran a 5-kilometer race on Saturday. If there are 1,000 meters in 1 kilometer, how many meters did she run?

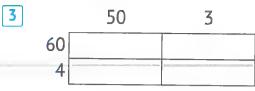
# Exercises on Lessons 3 & 4

# The Distributive Property of Multiplication & Using the Partial Products Model to Multiply

#### 1 Find the product using the Distributive Property:

#### 2 Solve using the area model:



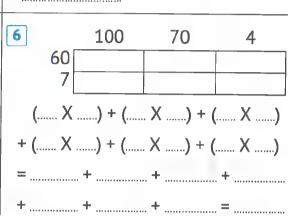


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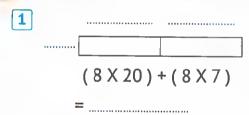
4	40	7
10	)	
7	3	
( X)	+ ( X) + (	X) + (X .

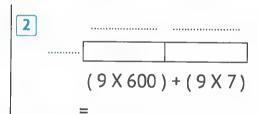


5	400	70	4
20			
4			
( X .	) + (	. X) +	(X)
+ ( X .	) + (	X) +	()
=	+	+	+
+	+	. +	=

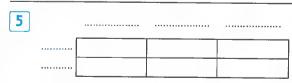


#### Solve using the area model:





3		***************************************	***************************************
	**********		



#### 4 Find the product using the partial products strategy:

3 2 1 65 903 37 9 5 X X X ( ..... X ...... ) + ..... ( ..... X ...... ) + ..... 5 6 4 706 53 86 12 27 X 32 ( X ( ..... X ...... ) ( ..... X ...... ) + ..... 9 7 8 549 638 347 12 Χ ( ..... X ...... ) + ..... ( ...... X ...... ) + ..... ( ..... X ...... ) + ..... ( ..... X ...... ) + .....

5 Using the rectangle model, find the result of 74 x 12. Divide the numbers in three different ways:

















6 Complete the following:

7		3
	8,000	
4	800	*******

9		10	11	
		95		802
	Χ	X 43		Χ
(5 X 6)	00000000000	( X )	(7X)	000000000000000000000000000000000000000
(5 X 30)		( X	(7X)	+
(20 X 6)	+	( ) +	( 40 X)	+
(20 X 30)	+	( ) +	( 40 X)	+
				.,,,,,,,,,,

#### 7 Choose the correct answer:

$$1 \times (600 + 2) = \dots$$
 (5 X 8 or 5 X 62 or 5 X 602 or 5 X 6,002)

$$3 12 \times 200 + 12 \times 30 + 12 \times 5 = 12 \times \dots$$
 (12 or 205 or 230 or 235)

$$(50+6) \times (90+3) \odot (50\times6) + (90\times3) \odot (50+6) + (90+3) \odot (5+6) \times (9+3) )$$

(85 X 37 @ 83 X 57 @ 87 X 35 @ 78 X 35)

2,500	300
300	36

(56 X 56 @ 25 X 36 @ 65 X 65 @ 300 X 36)

	200	7
40		
8		

(48 X 270 @ 48 X 27 @ 48 X 207 @ 48 X 9)

8	The area	model that repre	esents ( 8X 200 )	) + (	8 X 6)	is
---	----------	------------------	-------------------	-------	--------	----





#### 10 The area model that represents

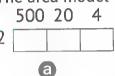
(50 X 70) + (50 X 3) + (4 X 70) + (4 X 3) is ................

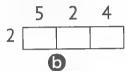
-	4	3			70	3		70	4			7	3
50			<u> </u>	50			<u>O</u>	50		0	5		
70				4				. 3			4		

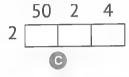
### Assessment on Lessons 3&4

#### Choose the correct answer: First.

- $17 \times (500 + 4) = \dots$ 
  - a 7 X 54
- **5** 7 X 504
- **G** 7 X 5,004
- **a** 7 X 9
- $(60 \times 20) + (60 \times 3) + (7 \times 20) + (7 \times 3) = \dots$ 
  - **a** 67 X 23
- 62 X 73
- **©** 63 X 27
- **a** 76 X 32
- The area model that represents (2 X 500) + (2 X 20) + (2 X 4) is









- - $a 4 \times (6 + 9)$
- $\bullet$  4 X (60 + 9)
- **Q** 4 X (600 + 9) **d** 4 X (60 + 90)

- - a 50 + 6
- $\bigcirc 5 + 6$
- $\bigcirc$  50 + 60
- $\bigcirc$  5 + 60

#### Second: Complete the following:

- 2 23 X 46 = ( 20 X ...... ) + ( 20 X ...... ) + ( 3 X .... ) + ( 3 X .... )
- $X = (20 \times 500) + (20 \times 6) + (4 \times 500) + (4 \times 6)$

#### Multiply using the following partial products models: Third

- 89
- 45 37 ( ..... X ..... ) + ( ..... X ...... ) +

# Assessment On concept 1

4556551116		Concept	
First. Choose the	e correct answe	er:	
1 5 X 1,000 =	•		
<b>a</b> 50 <b>b</b>	500	<b>©</b> 5,000	<b>d</b> 50,000
25 X 80 =			
<b>a</b> 2 X 10,000 <b>b</b>	2 X 1,000	<b>©</b> 2 X 100	<b>d</b> 2 x 10
The area model that repr	resents (9X 200)+	(9 X 40) + (9 X 5) is	
200 40 5	2 4 5	20 4 5	20 40 5
9 9		9	9
a	•	C	<b>a</b>
4 The multiplication proble		e model represents is	
	49 X 62		40 2
	26 X 94	a madal rapracants is	
The multiplication problem 12 X 32	12 X 302	e model represents is	3,000 20
	102 X 32		600 4
Second: Complete		00 V 7000	
1 8 X = 80,000 3 X = ( 10	•	00 X = 7,000	
4 9 X = 9 × (600 +			+ (7X)
Third: Solve the fo	ollowing problem	is using the mention	oned strategy:
1 2 X 47	2 82 X 15	3 14 X 23	
(Distributive Property)	(Partial P	roducts)	(Area Model)
Fourth: Answer the	e following:		

Omar owns 12 buses to transport tourists, each bus can carry 25 passengers. How many passengers can Omar carry each day if each bus is full?

# 3.2 Multiplying 4-Digit Numbers by 2-Digit Numbers

### Exercises on Lessons 5-7

What Is an Algorithm?, Multiplying Multi-Digit Numbers & Multiplication Problems in the Real World

#### 1 Find the product using the standard algorithm for multiplication:

1	82	2 6	08	264
	X 4	X	9	X 7
4	9324	5	39 6	75
	X 8	X 2	25	X 36
				***************************************
		+		+
7	306	8 6:	17	4,107
	X 18	X	54	X 36
				***************************************
	+	+		+
				** **** *
10	6,073	<b>[11</b> ] 8,34	47 12	9,678
	X 48	X 7	76	X 32
	+	+		+

#### 2 Find the product using the area model:

	**********	*********	*********
 *********	0000505050	044 0000000	0000000000
 *********		*********	

	*********	*********		*********
	FFE 88+44 MF8	*******	*******	*******
*********	*********	********	********	********

		********		********
*********	050-00-000	0-00-00	00000000000	E+++++++
*********	910700000000	*******	400.000.000	6000000000

*********	*********	*********	*********
 *******	********	*********	*******
 	**********	********	*********

	******	********		********
	V-100000000	********		*********
b *********	0044600400	0000000000	0000000000	0100200000

#### 3 Find the product using the partial products model:

1

		7,526
	Χ	42
(X	) .	*********
(X	) + .	*************
(X	) + .	*********
(X	) + .	**********
( X	) + .	
(X	) +	**********
(X	) +	
( X	) +	****************

3	4
5,324	3,294
X 27	X 53
( X	( X
( X	( X
( X ) +	( X ) +
( X ) +	( X ) +
( X ) +	( X
( X	( X ) +
( X ) +	( X ) +
( X	( X ) +
1 7,325 X 12 Estimate: Actual product: The strategy used:	
2 4,537 X 37	
Estimate:	
Actual product:	
The strategy used:	
3 2,314 X 14	
Estimate:	
Actual product:	
The strategy used:	

Number Sense and Operations

4 6,324 X 34 Estimate: Actual product: The strategy used:
Answer the following:  1 Each river bus can carry 22 passengers at a time.
What is the maximum number of passengers that the river bus can carry during 25 trips?
2 A rectangular piece of land has a length of 256 meters, and a width of 62 meters. Find its area.
3 Khaled bought 34 meters of cloth, the price of one meter was 9,560 piasters. What is the price of the cloth that Khaled bought?
A bus is 1,285 centimeters long. How long are 21 buses?
5 Marwan bought a car, and agreed with the owner of the car showroom to pay for it in 12 equal installments, the value of each installment is 9,865 pounds. What is the price of the car?
Mona saves 1,023 pounds every month. What is the total amount that Mona saves in 18 months?
7 16 persons participated in an exhibition, and each won 8,234 pounds.  How much did they all win?
8 A bag of fruit has a mass of <b>2,445</b> grams. What is the mass of <b>45</b> similar bags?

# Assessment On concept 2

Choos	e the correct a	inswer:			
1 The problem that r	epresents the opp	oosite area mode			
<b>a</b> 5,403 X 67	<b>6</b> 5,043 X 67			000 400	3
© 5,430 X 67	<b>d</b> 543 X 67		60 7		-
The problem that r	epresents the opp	oosite area mode	l is	. •	
<b>a</b> 3,502 X 43	<b>b</b> 3,052 X 43		120,000	2,000	80
© 3,520 X 43	<b>d</b> 352 X 43		9,000	150	6
3 The model that rep	resents 6,350 X 7	'3 is			
6,000 300 50	6,000 300 70 3	70 3	30 5 70 T	500 30	5
<b>a</b>	Ь	C		<b>(1)</b>	
<b>4</b> 3,006 X 25 =	<b>b</b> 90,000	<b>©</b> 7,650	0	75,150	
5 2,300 X 30 =					
<b>a</b> 69,000	<b>b</b> 6,900	<b>©</b> 60,900	0	96,000	
Second: Solve to	he following pr	oblems using t	the mention	ed strate	egy:
1 5,080 X 23	<b>2</b> 9,007 X	64	3 2,125 X 74		
(Distributive Prope	erty) (Pa	artial Products)	(4	Area Mod	lel)
					••••
				***********	
				***************************************	
				*****************	*****
Third: Answe	er the following	<b>)</b> :			
- Huda bought 18 kg			n was <mark>15</mark> poun	ds, and s	he
bought 18 kilogram	ns of mangoes, the				
the total amount th	at Huda paid?				



# lathematical perations nd Algebraic hinking



### Units of the Theme



### Division with Whole Numbers

Concept 4.1: Models for Division

Concept 4.2: Dividing by 2-Digit Divisors



### Multiplication and Division with Decimals

Concept 5.1: Multiplying Decimals

Concept 5.2: Dividing Decimals



### Numerical Expressions and Patterns

Concept 6.1: Evaluating Numerical

Expressions

Concept 6.2: Analyzing Numerical

**Patterns** 



# Division with Whole Numbers

4.1 Models for Division

### Exercises on Lessons 2

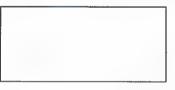
Understanding Division & Using the Area Model to Divide

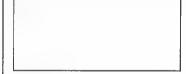
1	Answer	the	follo	wing:
---	--------	-----	-------	-------

- 1 A teacher has 96 books and wants to distribute them equally among 4 students. How many books will each student get?
- 2 Hazem bought 7 books. The price of each book is 23 pounds. What did Hazem pay?
- 3 Emad puts 85 cups in boxes, so that each box can accommodate 5 cups. How many boxes are needed for that?
- 4 Samah bought **76** sweets and distributed them equally among **6** of her friends. How many pieces will each friend get? Will there be pieces of sweets left with Samah?
- 5 Mona saves 35 pounds every month. How much does Mona save in 5 months?

- 6 Eman bought 8 books of the same kind for 144 pounds. What is the price of one book?
- A box has 256 balls. How many balls are in eight identical boxes?
- 8 What is the number that if divided by 6, the result is 27?
- 9 What is the number that if divided by 7, the result is 42 and the remainder is 4?
- 10 If the quotient is 5, the divisor is 4 and the remainder is 2, what is the value of the dividend?

2 Divide using the area model:



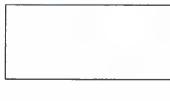


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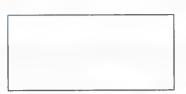






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· / 10 · Z
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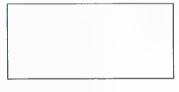


11 2,754 ÷ 3 = ......

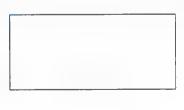


.....

12 3,846 ÷ 5 = ......



13 8,444 ÷ 6 = ......



......

14 7,452 ÷ 6 = ......

#### Divide using the area model:

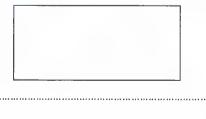


3 714 ÷ 21 = .....

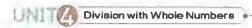
6 1,120 ÷ 32 = .............



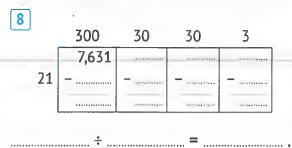
9 16,779 ÷ 47 = ......



11 23,595 ÷ 39 = ......  $10 32,144 \div 82 = \dots$  $1364,158 \div 52 = \dots$  $12 67,814 \div 41 = \dots$ 4 Complete the area model, then find the quotient: 1 3 4,635 135 45 - 4,500 - 135 \_\_\_\_\_= 6 5 100 1,856 356 - 1,500 - 300 - 45 32 - 9,600 356 ÷ ......



	100	100	40	5
	8,575			
35				
		***************************************	*********	************



#### 5 Complete the area model, then complete the table:

	Area Model	Dividend	Divisor	Quotient	Remainder
1		56,160	45		
2	200       300       40       2         16,817				
3	24				
4			72	357	12
5	42				

### Assessment on Lessons 1&2

200

8 - 1,600

1.960

360

20

- 160

360

200

#### Choose the correct answer:

1	The	division	problen	n that	expresses	the
	oppo	osite mo	del is			

**a** 
$$1,960 \div 8 = 2,225$$
 **b**  $360 \div 8 = 245$ 

**G** 
$$1,960 \div 8 = 245$$

**©** 
$$1,960 \div 8 = 245$$
 **©**  $1,960 \div 8 = 605$ 

2	The	divisor	in the	corresponding	model	is
---	-----	---------	--------	---------------	-------	----

<b>a</b>	14
----------	----

**6** 16

0 2

	10	6
	226	86
14	- 140	- 84
	86	2

20 200

-160

40

5

-40

The remainder of the division in the opposite model is ......

**a** 12

**6** 326

**C** 72

0

	300	20	6
	3,912	312	72
12	- 3,600	- 240	- 72
	312	72	0

The quotient in the opposite model is .......

**a** 435

**6** 4,305

**C** 4,350

**d** 4.035

	4,000	30	5
	254,205	2,205	315
63	- 252,000	- 1,890	- 315
	220,5	315	0

If  $45 \times 12 = 540$ , then the remainder of  $545 \div 12$  is ......

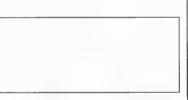
**a** 5

**1**2

**C** 45

**d** 540

#### Second: Use the area model to solve the following problems:



#### <sup>2</sup> 3.634 ÷ 12







#### Third Answer the following:

- 1 A red hat costs 400 LE, which is 4 times as much as a blue hat. How much does a blue hat cost?
- There are 138 job applicants for a vacancy. They will need to place the applicants in 6 rooms while they fill out the application. How many people will be in each room?

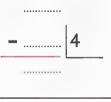
### Exercises on Lessons 3 & 4

#### Using the Partial Quotients Model to Divide & **Estimating Quotients**

#### Divide using the partial quotients model:

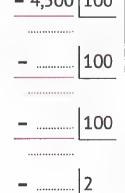
• 88 • Maths Prim. 5 - First Term

Complete using the partial quotients model, then find the quotient:



1,000

	1,000
************	
<u> </u>	200
***********	1
	30
000	



#### 4 Complete using the partial quotients model, then complete the table:

1

	<b>a</b>	6	C
Partial Quotients Model	<b>3</b> 2337	- 100 - 20 - 30	
Dividend –			
Divisor			
Quotient			
Remainder			

	а	Ь	G
Partial Quotients Model	75,257 - 65,000 1,000 - 6,500	- 1,000 - 200 - 200 - 7	- 260 20 - 20 - 20 - 3 0
Dividend			
Divisor			
Quotient			
Remainder			

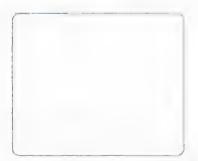
# 5 Estimate the quotient, then find the actual result. Use the strategy you prefer:





Estimate = ......



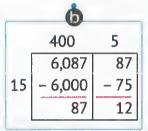




#### Match:

15	
	- 3,000 200
	3,087
	- 3,000   200
	87
B 7	<b>-</b> . 75   5
	12
L	3

		a	_
	200	50	1
	8,534	1,734	34
34	- 6,800	- 1,700	- 34
	1,734	34	00



		C		
	200	200	50	6
	3,648	2,048	448	48
8	- 1,600	- 1,600	- 400	- 48
	2,048	448	48	00

#### 7 Answer the following:

- 1 The owner of a juice shop owns 2,880 paper cups. If he uses them within 12 days equally, how many cups did he use every day?
- An association donated 11,250 pounds and it was distributed equally among 45 persons. What is the share of each of them?
- 3 A fruit merchant bought 349 kg of mangoes, and then bought another 364 kg. He wants to distribute the sum of what he bought among 3 boxes equally. How many kilograms are in each box?

### Assessment on Lessons 3&4

#### Choose the correct answer:

- 48 11,232 9,600 200

1.632

**a** 11.232

1,440 30

**6** 48

192

**©** 234

0

- 192 4
- The remainder of division in the opposite model is .........
- **12** 36,514 - 36,000 **3,000**

**a** 36.514

514

**6** 12

480 40

**©** 3.042

34 24 **2** 

10

- **d** 10

**65** 8,060

**a** 8.060

**-** 6,500 **100** 

**6**5 **©** 124

**a** 240,000

1.560 **- 1,300 | 20** 

**@** 260

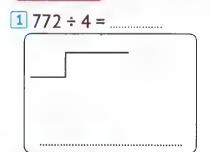
260 260 4 0

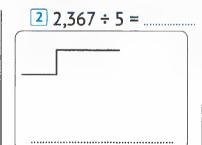
- 4 800 X 30 = .....
  - **6** 24,000
- **©** 2,400
- **d** 240

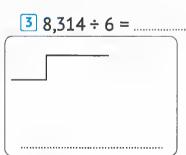
5 500 X ..... = 400,000

- **a** 800
- **6** 8,000
- **©** 80,000
- 000,000

#### Second: Divide using the partial quotients model:







#### Third: Answer the following:

Adel bought a car for 69,380 pounds and paid 65,940 pounds of its price, then he paid the rest of its price over four months equally.

What is the value of the monthly installment?

# Assessment On concept

Onno.	Deletera Del					
2013		Chanca	tha	correct	ancwor	
BALLS.		CHOOSE	riic	COLLECT	allowel	

- 1 The quotient in the opposite model is
  - **a** 1,226
- **6** 24
- **©** 3,504
- **d** 146
- 2 The divisor in the opposite model is
  - **a** 5,635
  - **D** 23
  - **G** 245
  - **a** 0

	100	20	20	6
	3,504	1,104	624	144
24	- 2,400	- 480	- 480	- 144
	1,104	624	144	0
			-	

23	5,635
_	4,600 200
	1,035
_	920 40
	115
_	115 <b>5</b>
_	0

400

15 - 6,000

6.154

154

10

-150

154

- The remainder of division in the opposite model is
  - **a** 15

6,154

**C** 410

- **d** 4
- 4 If 45 X 24 = 1,080, then 10,800 ÷ 24 = ......
  - **a** 45

**6** 24

**G** 450

- **2**40
- 5 If  $26 \times 155 + 20 = 4,050$ , then the remainder of  $4,050 \div 26$  is .........
  - **a** 20

**6** 26

- **©** 155
- **d** 4,050

#### Divide using the strategy you prefer:

- 1 45,240 ÷ 9 = .....
- 23,154 ÷ 6 = .....
- 3,096 ÷ 12 = .....
- 4 78.321 ÷ 26 =

#### Complete the following:

- 1 45,000 ÷ 5 = .....
- 2 40,000 ÷ ..... = 8,000
- 3 = 34 = 10,000
- ÷ 12 = 3,000

#### Answer the following:

- 1 If the profit of one of the shops is 7,280 pounds, and they will be distributed equally among 5 persons, what is the share of each person?
- If 168 pupils are divided equally into groups of 12 pupils each, how many groups can we get?

### 4.2 Dividing by 2-Digit Divisors

### Exercises on Lessons 5-7

Using the Standard Algorithm to Divide, Checking Division with Multiplication & Multistep Story Problems

#### 1 Divide using the standard division algorithm:

$$71,475 \div 5 = \dots$$

#### 2 Divide using the standard division algorithm:

$$1256,373 \div 23 = \dots$$

#### 3 Complete the partial quotients model, then find the quotient:

82,112

3,224

- 26



### 4 Divide using different division strategies:

Standard Div	Partial uotients Model	Area Model	Division
 			10,455 ÷ 85 =
 			3,213 ÷ 17
 			50,312 ÷ 38

5	Com	plete	the	foll	owing	1:
		10.00				у.

_					
4	LC 7 F	V 17 _ 1FF	than AFF :	17 —	
1 4 1	IT 11	X 1 7 = 477	. unen 455 F	TD "	

3 If 
$$61 \times 16 = 976$$
, then  $980 \div 61 = 16$  and the remainder is

4 If 
$$2,000 \div 54 = 37$$
, and the remainder is 2, then  $37 \times 54 = \dots$ .

#### 6 Answer the following:

1 A bakery made 140 servings of baklava for a party. If each baking tray holds 12 servings of baklava, how many trays will be needed to hold all the baklava?

In one year, a textile factory used **11,650** meters of cotton, **4,950** fewer meters of silk than cotton, and **3,500** fewer meters of wool than silk. How many meters of fabric were used in all?

	An architect is designing a bridge. The architect has two choices for materials. Mighty Steel sells 50 metric tons (t) of steel for 100,000 LE. Silver Strong Steel sells 30 t of steel for 70,000 LE.  If the architect needs 15 t of steel, how much money will be saved by purchasing from Mighty Steel?
4	Zeinab ordered 12 packages of fabric squares to make a quilt. Each package has 18 fabric squares, and Zeinab used all the squares for her quilt. Reem made a quilt that was 13 squares wide by 13 squares long. How many fewer squares did Reem use than Zeinab for her quilt?
5	Nagi sold a total of 30 boxes of sports T-shirts at his store on Monday. These boxes contained only basketball T-shirts and football T-shirts. Each box contained 25 sports T-shirts. He earned 3 LE for each sports T-shirt he sold. He earned a total of 1,134 LE from the football T-shirts he sold. How much money did Nagi earn from the basketball T-shirts he sold?

6	Malek and his family are going on a road trip to his grandmother's house, which is 465 kilometers away. On Friday, they traveled 124 km. On Saturday, they traveled 210 km. How many kilometers will they need to travel on Sunday to reach his grandmother's house?
7	If the total price of 25 books is 1,875 pounds, what is the price of 36 books?
8	Hussam bought a car and paid <b>85,500</b> pounds as a down payment (part of the price), and the rest of the car's price is paid in <b>24</b> equal monthly installments. If the total price of the car is <b>163,500</b> pounds, what is the value of each installment?
9	A school has 456 boys and 419 girls. It is intended to divide boys and girls equally into 25 classes in the school. How many students will be in each class?
10	A rectangular garden with dimensions of 124 meters by 85 meters, divided into rectangular planting basins, each of which is 62 square meters. How many basins are in the garden?

# Assessment On concept

#### First. Choose the correct answer:

1 The quotient in the following division 2 The divisor in the following division model is ......

	0437
<b>a</b> 5,248	<b>12</b> 5,248
_	48
<b>6</b> 12	44
<b>C</b> 4	_ 36
	88
<b>d</b> 437	_ 84
	4

model is ...

		0181
<b>a</b> 4,528	25	4,528
	_	25
<b>b</b> 25		202
<b>©</b> 3		200
		28
<b>d</b> 181	_	25
		3

The remainder in the following division model is ......

<b>a</b> 954		029
<b>6</b> 32	32	954
		64
<b>©</b> 26		314
<b>d</b> 29	_	288
C 29		

4 From the following division model, 802 =

002		
a 22 X 36 + 10		036
<b>6</b> 22 + 36 X 10	22	802
<b>9</b> 22 + 30 ∧ 10	_	66
© 22 X 36 X 10		142
<b>d</b> 22 + 36 + 10		132
22 + 30 + 10		10

- 5 24,000 ÷ 600 = .....
  - **a** 4

**b** 40

- **G** 400
- **d** 4,000

#### Second: Complete the following:

26

#### Third: Answer the following:

There are 205 people at a concert. After the concert, 40 people left in cars, the rest of them want to go home by a microbus. If the load of each microbus is 11 people, how many microbuses are needed for everyone to get home?

# Multiplication and Division with Decimals

### 5.1 Multiplying Decimals

### Exercises on Lessons 1 & 2

Multiplying by Powers of Ten & Multiplying Decimals by Whole Numbers

#### 1 Find the product of:

#### 2 Find the product of:

5 2.6 X 0.6 = 7 3.33 X 5 \_\_\_\_\_\_ 9 253 X 0.003 = ...... 10 0.008 X 5 = = ...... 12 6.35 X 3 11 4.5 X 0.09 \_\_\_\_\_\_ 13 2.4 X 12 = ...... 14 0.45 X 13 15 3.7 X 22 = ...... 16 27 X 2.1 = ..... 17 4.3 X 52 = ..... 19 12.4 X 11 = ...... 20 45 X 2.07 = = ...... 22 0.15 X 124 21 0.365 X 23 23 3.02 X 12 \_\_\_\_\_ 3 Complete the following: 1 .....X 10 2 ..... X 100 = 50= 3.3003 ..... X 1,000 = 20,000 4 X 0.1 = 0.75 X 0.01 = 0.03 6 X 0.001 = 0.0027 X 10 8 X 100 = 5 = 509 ..... X 1,000 = 700 10 X 0.1 = 0.2411 ..... X 0.01 = 0.024 12 X 0.001 = 0.01713 42 X 14 23 X = 420= 2,30015 65 X ..... 16 14 X ..... = 56,000 = 1.417 6.3 X ..... 18 32 X = 0.063= 0.03219 0.05 X 20 63.7 X ..... = 50 = 6,37021 2.05 X 22 0.06 X ..... = 20.5= 0.00623 3.7 X ..... = 3,70024 20 X ..... = 0.02

#### 4 Compare using (<, = or >):

- 1 25 X 0.1
- 0.25 X 10
- 2 50 X 0.01
- 0.5 X 100

- 3 73.2 X 0.1
- 0.732 X 100
- 4 36 X 0.1
- 3.6 X 10

- 5 56 X 11
- 5.6 X 11
- 6 45 X 0.12
- 4.5 X 12

- 7 1.44 X10
- 1.2 X 12
- 8 75 X 0.01
- 0.25 X 3

- 9 15 X 0.15
- 2.25 X 0.1
- 10 9 X 0.9
- 8.1 X .01

#### 5 Match:

- 25 X100
- 25 X 0.1
- 25 X 0.01

### **a**







- 2.5 X 1,000
- 2.5 X 0.1
- 2.5 X 100
- 0.25 X 10

#### 6 Complete the following:

- 1 If 6 X 25 = 150, then 6 X 0.25 = .....
- 2 If 8 X 50 = 400, then 0.8 X 5 = .....
- 3 If 5 X 24 = 120, then 5 X 2.4 = ......
- 4 If 1.2 X 25 = 30, then 12 X 0.25 = .....
- 5 If 0.24 X 5 = 1.2, then 2.4 X 5 = ......
- 6 When multiplying by 0.01, we move the decimal point places to the places.
- 7 When multiplying by ....., we move the decimal point one place to the right
- 8 When multiplying by ....., we move the decimal point 3 places to the left.
- **10** 1.5 X ..... = 30
- 11 10.5 X = 1.05
- 12 0.25 X ..... = 200

- 13 7.5 X ...... = 15
- 14 11 X ..... = 12.1
- 15 0.31 X ..... = 0.93

### Assessment on Lessons 1&2

#### Find the product of:

#### Second: Compare using (<, = or >):

8 X 0.06

0.12 X 10

6.35 X 100

8.25 X 10

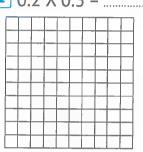
#### Third: Match:

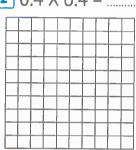
#### Fourth Complete the following:

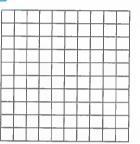
### Exercises on Lessons 3-5

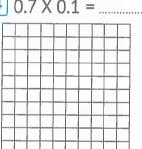
# Multiplying Tenths by Tenths, Estimating Decimal Products & Using the Area Model to Multiply Decimals

#### 1 Use the Base 10 grids to find the product:

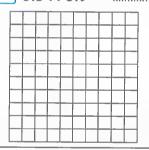


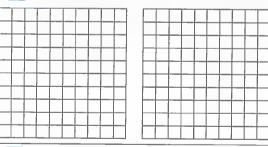


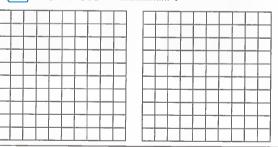




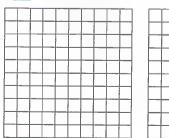




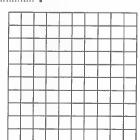








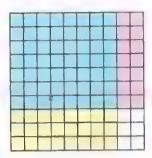




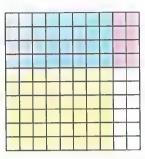
# Write the multiplication problem represented by each of the following Base 10 grids, then find the result:







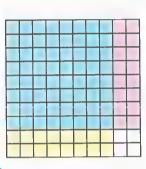
2 ..... X ..... = ......



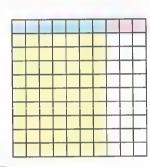
3 ..... X ..... = .....



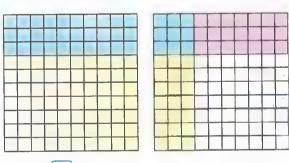
4 ..... X ..... = ......



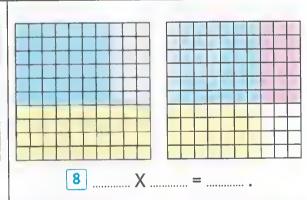
5 ..... X ..... = .....



6 ..... X ..... = .....



7 ..... X ..... = .....



9 X ......

# 3 Estimate the product of the multiplication. Round to the nearest whole number:

1 2.5 X 89.7

Estimate: \_\_\_\_ = \_\_\_

2 6.45 X 20.45

Estimate: X =

3 100.2 X 29.7

Estimate: \_\_\_\_ = \_\_\_\_

4 4.28 X 3.68

Estimate: ..... X ..... =

5 14.8 X 29.7

Estimate: \_\_\_\_ = \_\_\_\_

**6** 99.7 X 3.7

Estimate ..... X ..... =

7 0.24 X 243.4

Estimate: ..... X ..... = .....

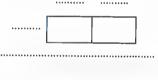
8 6.8 X 63.5

Estimate: ..... X ..... =

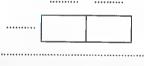
#### 4 Multiply using the area model:

	*********	********
l		

2 0.08 X 4.7



3 6 X 20.3



4 0.9 X 4.2

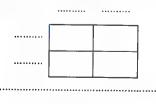
5 0.6 X 3.04



6 9 X 20.3



7 0.12 X 4.5

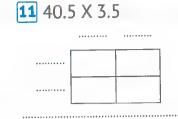


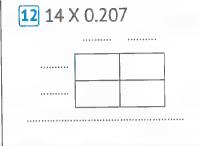
8 63 X 0.74

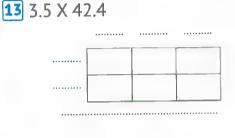
9 0.24 X 2.7

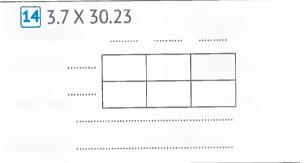
	*********	
•••••		
*********		

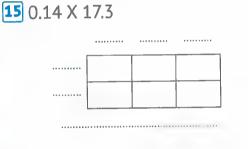


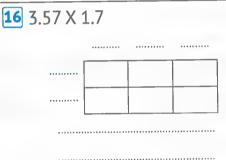




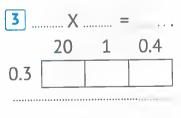




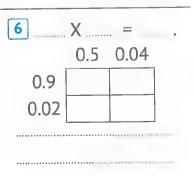




Write the multiplication problem that expresses the following area models, and then solve them:



	4	0.3
0.2		
0.07		



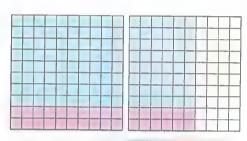
**************	Х		
	0.1	0.04	0.002
40			
7			

	3	0.4	0.09
4			
7			

#### 6 Choose the correct answer:

(16 X 80 or 1.6 X 0.8

oo 160 X 80 oo 1.6 X 8)



(3 X 9 **1** 30 X 0.9 **1** 30 X 90 **1** 0.3 X 0.9)

7 0.3 0.02 50 0.3

- 5 If 12 X 45 = 540, then ...... X 0.45 = 540. (1.2 @ 0.12 @ 120 @ 1,200)
- 6 If 1.3 X 7.2 = 9.36, then 13 X ..... = 93.6. (0.72 7.2 72 720)

(60 @ 6 @ 57 @ 65.4)

(0 0 13 0 12 0 6.1)

(> **o** = **o** < **o** ≤)

 $(> \bigcirc ) = \bigcirc ) < \bigcirc ) \leqslant )$ 

9 35 X 0.2

3.5 X 2

10 3.6 X 0.01

36 X 10

### Assessment on Lessons 3-5

Write the multiplication problem represented by each of the following Base 10 grids, then find the product:













Second Write the multiplication problems that express the following area models, and then solve them:

	10	0.08
90		
0.2		
2		

	800	50	2
0.2			, ,
0.04			
3	-		

#### Complete the following:

1 If 2 X 45 = 90, then ...... 
$$X 0.45 = 0.09$$
. 2 If 5 X 3 = 15, then 5 X = 1.5.

#### Answer the following:

Marwa is a museum curator. She wants to repaint the museum walls, which are measured in meters. There are four walls, each measuring 3.8 m × 15.2 m. Estimate how many square meters she needs to cover with paint. Explain your answer.

#### Exercises on Lessons 0 &

# Multiplying Decimals through the Hundredths Place & Multiplying Decimals through the Thousandths Place

#### 1 Multiply (35 x 12) using the standard algorithm, then complete:

35

12

\_\_\_\_

#### 2 Multiply (105 X 24) using the standard algorithm, then complete:

3 105 X 0.24 =

24

105

#### 3 Multiply using the standard algorithm:

1	36 × 0.7	2 0.368 X 5	3 6.07 × 9	4 115.2 0.06
	***************************************	***************************************	***************************************	
5	4.57	3.336	7 37.07	12.25
	× 5.9	X 21	X 13	3.5
	**********		***************************************	
	+	+	······	
	***********		**************************************	
9	6.35	<b>10</b> 3,021	20.02	3.27
	X 1.7	× 0.032	× 3.6	24
	***************************************	***************************************	***************************************	
	+	+		***************************************

4 Compare using (<, = or >):

1 2.8 X 3.4 0.28 X 34 2 6.3 X 12 0.63 X 12

3 6.4 X 0.37 64 X 3.7 4 2.2 X 2.2 . . . . 0.22 X 22

**5** 4.5 X 0.2 45 X 20 **6** 6.34 X 32 63.4 X 3.2

7 0.45 X 0.1 4.5 X 10 8 67 X 10.2 67 X 1.2

9 0.5 X 0.8 0.2 X 0.2 10 3.2 X 3.2 0.32 X 320

#### 5 Answer the following:

1 Nada bought 26 meters of fabric. If the price of one meter was 43.5 pounds, how many pounds did Nada pay?

2 Khaled bought 9.5 liters of juice with the price of 12.7 pounds per liter. How many pounds did Khaled pay?

If a pizza costs 22.25 LE, how much does 12 pizzas of the same kind cost?

4 A merchant bought two types of cloth, one at a price of 92.5 pounds per square meter, and the other at a price of 58 pounds per square meter. If he bought 10 meters of the first type and 6.5 meters of the second type, how many pounds did the merchant pay?

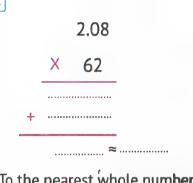
Malik walked 7.9 km on Friday and 3.6 km on Saturday, then Malik repeated that every weekend for 6 weeks. How many total kilometers did Malek walk in 6 weeks?

### Assessment on Lessons 687

#### Complete the following:

- 2 If 137 X 21 = 2,877, then 1.37 X ..... = 2.877.
- $\begin{bmatrix} 3 \\ 0.02 \\ X \\ 0.03 \\ = \end{bmatrix}$
- 4 0.3 X = 0.009
- 5 0.2 X 0.3 X 0.5 = .....

#### Second: Use the standard algorithm to multiply:



#### (To the nearest Tenth) (To the nearest Hundredth) (To the nearest whole number)

#### Third If 452 X 27 = 12,204, then:

- 1 4.52 X 2.7 = .....
- 2 0.452 X 27 = .....
- 3 45.2 X 27 = .....
- 4 4.52 X 2.7 = .....
- 5 4.52 X 0.27 = ......
- 6 0.452 X 0.27 = .....

#### Compare using (<, = or >):

- 1 0.8 X 0.3 0.8 X 0.03
- 2 54 X 1.1 0.54 X 11
- 3 0.45 X 10 45 X 0.1
- 4 2.5 X 2.5 625 X 0.1

### Exercises on Lessons 8-10

# Decimals and the Metric System, Measurement, Decimals, and Powers of Ten & Solving Multistep Story Problems

#### 1 Complete:

1 8,523 ml	=	X	=	******************************	iters.
2 954 ml	=	X	 =	•••••••	iters.
3 25 ml	=	X	=	l	iters.
4 78 liters	=	X	 ≂	r	nl.
5 2.5 liters	=	X	 =	r	nl.
6 1.24 liters	=	X	=	r	nl.
7 23 km	=	X	=	me	eters.
8 0.753 km	=	X	=	me	eters.
9 235 m	=	X	=	k	km.
<b>10</b> 3,235 m	=	X	=	k	km.
11 32 m	=	X	=		cm.
12 3.35 m	india.	X	 =		cm.
13 0.12 m	=	X	=		dm.
14 45 cm	=	X	=	r	n.
1,247 cm	=	X	=	r	n.
16 7.5 dm	=	X	=		cm.
17 7.5 kg	=	X	 =	9	gm.
18 85 gm	=			k	kg.
19 235 mm	=	X	=		cm.
20 2.8 cm	=	X	=	r	nm.

#### 2 Choose the correct answer:

1 6.52 kg = ..... gm.

(65.2 @ 652 @ 6,520 @ 65,200)

2 549 gm = ..... kg.

(5,490 **o** 5,49 **o** 54.9 **o** 0.549)

3 62 ml = ..... L.

(620 @ 6.2 @ 0.62 @ 0.062)

- (635 @ 6,350 @ 63,500 @ 635,000)
- 5 45 cm = ..... meters.

(4,500 @ 450 @ 4.5 @ 0.45)

6 0.028 meters = ..... cm.

 $(0.28 \odot 2.8 \odot 28 \odot 280)$ 

7 | 3.2 km = ..... m.

(32 @ 0.32 @ 3,200 @ 0.032)

8 45 meters = ..... km.

 $(0.045 \odot 4,500 \odot 4.5 \odot 450)$ 

9 4.5 cm = ..... mm.

(45 @ 0.45 @ 450 @ 0.045)

10 256 mm = ......cm.

 $(0.256 \odot 2.56 \odot 25.6 \odot 2,560)$ 

#### 3 Compare using (<, = or >):

- 1 45 ka
- 4,500 gm
- 2 3.25 cm
- 32.5 mm

- 3 2.5 meters
- 2,500 cm
- 4 63 liters
- 0.063 ml

- 5 5,000 m
- 0.5 km
- 6 0.02 km
- 2,000 mm

- 7 11.5 L
- 15.1 L
- 8 50 cm
- 5 mm

- 9 600 m
- 6 km
- 10 0.025 kg
- 2.5 gm

#### 4 Put (✓) in front of the correct statement, and (X) in front of the wrong statement:

1 78 kg = 7,800 g

- 2 3.5 m = 350 cm

- |4| 63 km = 0.063 gm
- )

- 3 200 ml = 0.2 liters

(

- | 5 | 12.5 meters = 1.25 dm
- 6 1 cm = 0.1 mm

Exercise Book 117

7	1 cm = 0.01 meters	(	)	<b>8</b> 25 ml = (	).025 liters	(	)
9	10.2 mm = 1.02 cm	(	)	10 45.3 L = (	).453 ml	(	)
5	Answer the following	g:					
1	Eman wants to know	now mu	ıch her	height increas	ed.		
	In January, she was 1.	34 m ta	ll, and	at the end of th	ne year she v	was <b>1</b> 4	<b>45</b>
	cm tall. How many cer	ntimete	rs did	Eman increase i	n height?		
2	Hazem bought <b>7</b> book Hazem paid.	s, the p	rice of	one book is 23	.5 pounds. F	ind w	hat
3	A fruit merchant has boxes of peaches, each	n weigh	ning <mark>4,</mark>	600 grams.		kg and	d 3
4	If Mazen is <b>1.64</b> mete Find the sum of their						n.
5	Sami drinks 4 liters of morning, and 2,450 m of water will he drink	illiliters	of wa	ter in the aftern			
		• • • • • • • • • • • • • • • • • • • •			***************************************		

Mathematical Operations and Algebraic Thinking

### Assessment on Lessons 8-10)

First:	Choose the	correct ans	wer:		
1 78.5 m =	cm.				
<b>a</b> 785	<b>6</b> 7.8	85	<b>©</b> 7,850		0.785
2	. kg = 460 gm.				
<b>a</b> 0.46	<b>5</b> 46	50,000	<b>4.60</b>		<b>3</b> 4,600
3 5.2 L =	mL.				
<b>a</b> 0.052	<b>6</b> 0.	52	<b>©</b> 52		5,200
4 2.56 X	= 25.6				
<b>a</b> 10	<b>b</b> 10	00	<b>©</b> 0.1		0.01
5 0.01 X	= 0.025				
<b>a</b> 0.25	<b>6</b> 2.	5	<b>©</b> 25		<b>3</b> 250
0		C . 11 '			
	Complete the	_			
	= X				
_	= X				
	= X				
4,258 cm	= X	= ,	m.	5	X 85 = 0.085
Third:	Compare usi	ing (<, = or	<b>&gt;</b> ):		
1 45 kg	4,500 gm	2	5.02 L	5,020 mL	
<b>3</b> 75 dm	, 750 m	4	25 X 0.01	0.25 X 10	00
Fourth:	Answer the fo	ollowing:			
Ali's cat we	ghs <b>7</b> kilograms	and his dog w	veighs <mark>17</mark> kil	.ograms. Whe	n Ali took them
to the vet, h	e knew that his o	at had gained	d <b>0.45</b> kilogr	ams and his	dog had gained
0.12 kilogra	ams. What is the t	otal weight o	f the two pe	ts now?	

# Assessment On Concept

THE RESIDENCE OF		The Control of the Co	
First Cho	ose the correc	t answer:	
1 The multiplicati	on problem that e	xpresses the corresponding	
model is			
<b>a</b> 0.12 X 0.35	<b>b</b> 1.2 X 3.5		
<b>©</b> 0.3 X 0.5	<b>d</b> 30 X 50		
_		5 X 0.34 is	
20 5	<b>b</b> 2	0.5 20 0.5	<b>a</b> 2 0.5
30	0.3	3	0.3
5	0.05	0.5	0.5
3 If 25 X 16 = 400			
<b>a</b> 0.04	<b>6</b> 0.4	<b>C</b> 4	<b>d</b> 40
4 0.48 liter =	milliliter.		
<b>a</b> 0.048	<b>b</b> 4.8	<b>©</b> 48	<b>d</b> 480
5 (3 Tenths) X (8	•		
<b>a</b> 0.024	<b>6</b> 0.24	<b>©</b> 24	<b>d</b> 240
Con	plete the follo	wing:	
1 86 X = (	0.086 2 If	f 24 X 12 = 288, then 2.4 X	( 0.012 =
3 25.7 X 9.8 E	stimateX	= ( To the nea	rest whole number )
4,258 gm =	X =	kg. 5 0.7 X 0.8	3 X 0.5 =
Com	npare using (<,	= or >):	
1 0.2 X 0.01	0.4 X 0.05	<b>2</b> 6.2 X 100 0.06	2 X 10
<b>3</b> 75 cm	750 ml	4 1.2 X 3.5 0.12	X 350
Ans	wer the followi	ng:	
1 The length of the	waysa talean by the	viscan have in EQ 7 last 1 last to	

- 1 The length of the route taken by the river bus is 58.7 km. How many kilometers would the river bus travel if it traveled this route 9 times a day?
- 2 Souad bought 20 meters of fabric. If the price of one meter is 65.5 pounds, what is the price of the whole fabric?

### 5.2 Dividing Decimals

### Exercises on Lessons 11-13

# Dividing by Powers of Ten, Patterns and Relationships in Powers of Ten & Modeling Decimal Division

#### 1 Divide:

#### 2 Complete the following:

$$\div 0.01 = 400$$
  $\div 0.001 = 300$ 

$$\div 0.1 = 2.4$$

$$\div 0.001 = 960$$

#### 3 Complete the following patterns:

9 
$$0.05 \div \dots = 0.05 \times \dots = 50$$
 10  $0.005 \div = 0.005 \times \dots = 5$ 

#### 4 Match:

#### 5 Compare using (<, = or >):

 $25 \div 0.01$ 

10 ÷ 100

 $3 \div 0.001$ 

12.5 X 10

 $1.5 \div 10$ 

721 ÷ 10

 $188 \div 0.1$ 

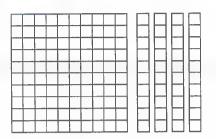
 $0.225 \div 0.1$ 

$$2.2 \div 10$$

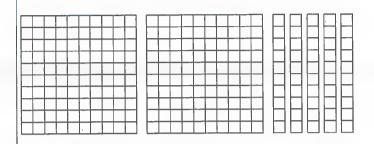
# 6 Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

#### 7 Use the Base 10 blocks to model the following problems:

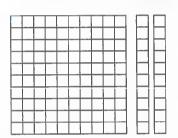
1.4 ÷ 0.7 = ......



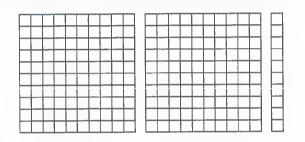
2 2.5 ÷ 0.5 = .....



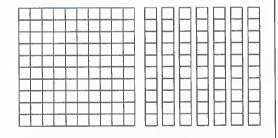
3 1.2 ÷ 0.6 = .....



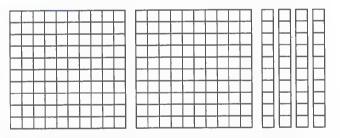
4 2.1 ÷ 0.7 = .....



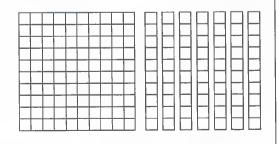
5 1.8 ÷ 0.9 = .....



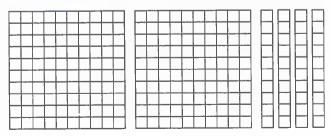
6 2.4 ÷ 0.8 = .....



7 1.8 ÷ 0.45 = ......



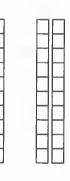
**8** 2.4 ÷ 0.6 = .....



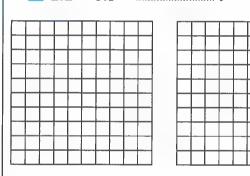
### Assessment on Lessons 11-13

#### First Complete the following:

#### Second: Use the Base 10 blocks to model the problems and divide:



$$2.1 \div 0.3 = \dots$$



#### Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

#### Fourth Compare using (<, = or >):

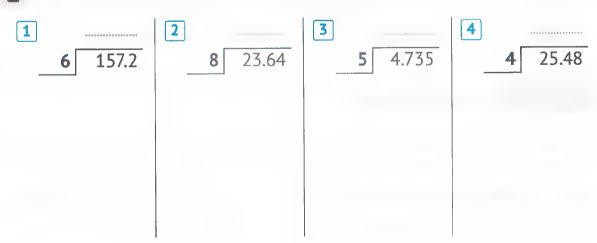
### Exercises on Lessons 14-17

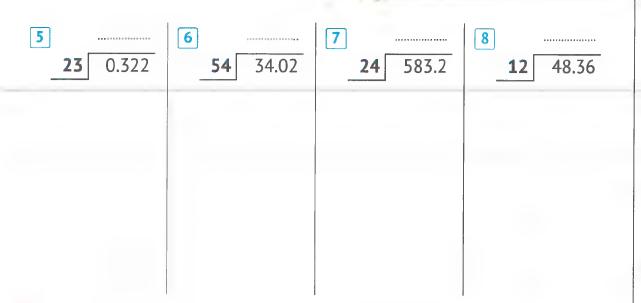
Estimating Decimal Quotients, Dividing Decimals by Whole Numbers, Dividing Decimals by Decimals & Solving Challenging Multistep Story Problems

1 Estimate the decimal quotients in each of the following: (round the dividend to the nearest whole number and the divisor to the nearest compatible whole number)

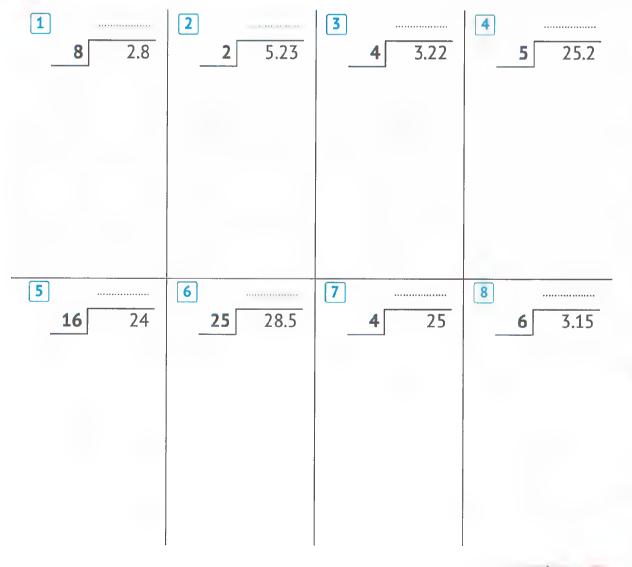
1	56.7 ÷ 8.7	Estimate:	•	=	or			*
---	------------	-----------	---	---	----	--	--	---

2 Use the standard algorithm to divide:





3 Use the standard algorithm to divide:





......

5 245 ÷ 0.7 = ......

6 934 ÷ 0.8 = .....

8 1.44 ÷ 1.2 = .....

9 45.6 ÷ 0.15 = .....

#### 5 If $53 \times 31 = 1,643$ , then:

#### 6 Compare using (<, = or >):

$$0.36 \div 0.12$$

### Assessment on Lessons 14-1

#### Use the standard algorithm to divide:

#### Second If 434 X 12 = 5,208, then:

#### Third Match:

$$\bigcirc$$
 1,225 ÷ 0.25

**d** 
$$12.25 \div 25$$

#### Fourth Answer the following:

The mass of a package of cake is 0.08 kilogram heavier than the mass of a package of cookies. The mass of 6 packages of cake is the same as the mass of 9 packages of cookies. Label your answers.

What is the mass of a single package of cookies?

What is the mass of a single package of cake?

# Assessment On concept

#### Choose the correct answer:

1 liter = 45 milliliters.

**a** 0.045

**6** 45,000

**Q** 0.45

4.500

2 3 Tenths ÷ 5 Hundredths =

**a** 15

**6** 

**©** 0.015

0.06

3 24.7 ÷ ..... = 0.247

**a** 0.01

**6** 0.1

**C** 10

**d** 100

4 9.6 ÷ 0.1 = ....

**a** 9.6 X 0.1

96 X 0.1

**G** 96 X 10

**d** 9.6 X 10

5 0.001 X ..... = 0.25 ÷ 10

**a** 0.25

**6** 2.5

**©** 25

**d** 250

#### Complete the following:

1 75.03 ÷ ...... = 750.3 2 18,000 ÷ 100 = ......

3 18 X 0.01 = 18 ÷ ...... mm.

#### Match:

1 25 X 0.1

2 2.5 X 0.1

3 2.5 X 0.01

4 2.5 X 10

**a** 2.5 ÷ 10

 $\bigcirc$  2.5 ÷ 0.1

 $\bigcirc$  0.25  $\div$  0.1

 $\bigcirc$  0.25 ÷ 10

#### Answer the following:

A factory for the manufacture of pasta produces 832.5 kg of pasta daily, which are packed in bags of 450 grams per bag. Find the number of bags needed for this.

# Numerical Expressions and Patterns

### 6.1 Evaluating Numerical Expressions

### Exercises on Lessons -4

Numerical Expressions, Numerical Expressions with Grouping Symbols, Placing Grouping Symbols & Writing Expressions to Represent Scenarios

1 Use the order of operations to evaluate each expression, one step at a time:

·		
1.5 + 2.5 + 0.7	9.8 - 2.6 - 1.3	8.01 + 7 - 10.02 =
=	=	Official Administration of the Control of the Contr
=	=	=
4 24 - 5.5 + 4.3	5 0.2 X 2 X 4.2 =	6 4.5 ÷ 3 ÷ 0.5 =
=	=	=
7 2.5 X 8 ÷ 0.5 =	8 4.8 ÷ 6 X 0.5 =	9 8 X 2.5 + 10.2
=	=	=
10 4.2 X 10 - 8.2	11 7.5 + 4 X 2.4 =	1.5 – 0.3 X 0.3 =
=	=	=
13 4 ÷ 0.8 + 2.5 =	14 0.36 ÷ 0.9 – 0.4	15 4.2 + 1.6 ÷ 2 =
=	=	=

# 2 Use the order of operations to evaluate each expression, one step at a time:

## 3 Use the order of operations to evaluate each expression, one step at a time:

1 4.2 X (10 - 9.2) =	2 (7.5 - 4) X 0.1 = = =	3 (4.3 + 0.7) X 0.3 = = = =
4 4 X ( 5.8 + 4.2 ) = = = = =	5 0.36 ÷ ( 0.9 – 0.3 ) = = = = = =	6 (4.2 + 1.6) ÷ 2 = = =
7 2.4 ÷ (7.8 – 7.2) = =	8 16 ÷ (0.9 + 0.7) = = = = = =	9 (5.2 – 0.4) ÷ 6 = = =

#### 4 Use the order of operations to evaluate each expression:

1 [ 0.85 X ( 2.7 + 7.3 ) ] - 3.5	2 25 + [ 0.5 X (4.2 - 3 ) - 1 ] =
=	=
=	=
3 [ ( 20.5 – 10 ) X 0.3 ] ÷ 0.1	4 [ ( 0.36+1.2 ) ÷ ( 0.6+0.2 ) ] X 5
=	=
=	=
5 12 X [ ( 0.1 + 0.5 ) X 10 ] ÷ 8	6 54 ÷ [ 75 X 0.1 – ( 15÷10 ) ]

= .....

= \_\_\_\_\_\_\_

= \_\_\_\_\_\_

= .....

=

5	Place grouping symbols (parentheses and/or brackets) in the
	expressions to generate the given values. Sometimes grouping
	symbols are not needed.

	ne value is 5 ) 5 X 5.4 + 4.6	
=		
=		
=		

	The 5.6 -	ue is X 6	0.6	)
=	**********	 	••••••	
=		 		• • • • • • •
-				

	The value is 9) 4.5 ÷ 5 X 10	
=		•
=		
=		
=	***************************************	

					_
4 (				is 24) 4.2 + 0	
=	••••	•••••	***********		***
=					•••
=					•••
=					**1

6 (The value is 3.1) 2.5 + 3.5 + 2.5 X 0.1
=
=
=
=

#### 6 Match:

7 For each problem, write an expression that matches the clues. Then, evaluate the expression:

1 Add 5.9 and 12.6. Then multiply the result by 10.

2 Add 5.25 and 3.1. Then divi the result by 0.1.	de
	*******

3 Multiply 0.542 by 100 and add 2.5.	4 Divide 456 by 10 and add 4.4.
5 Divide 93 by 0.3. Then add 114.7 and divide the result by 5.	6 Add 30.5, 5.5, and 4. Then subtract the result from 125.5 and finally multiply by 100.
7 Multiply 7.6 by 100. Next subtract 34.3. Then add 12.4. Finally divide the result by 0.1.	8 Divide 4.5 by 0.1. Then add 5.5. Multiply by 10.
Answer the following:  1 Adel bought 16.5 kg of apple. He gawants to give the rest to 5 of his feach friend get if he divided it equals	friends. How many kilograms would
Maha walked 2.5 kilometers every week, she walked 54.2 km. How m those three weeks?	day for two weeks. The following any kilometers did she walk during
	Each bag contains 12 balloons. He ds at his birthday party. If he has 8 bons will each friend take?

# Assessment On concept

First: Choose the correct answer:

1 4.5 + 35 X 0.1 = .....

<b>a</b> 8 <b>b</b> 3	.95	<b>©</b> 0.8		<b>d</b> 39.5
2 1.2 X ( 0.3 + 0.2 ) =				
<b>a</b> 0.56 <b>b</b> 0	.6	<b>©</b> 6		<b>d</b> 5.6
3 The mathematical expre	ssion that expr	esses "Add 3.5	and 3.7.	Then multiply by
0.8" is				
<b>a</b> 3.5 + 3.7 × 0.8 <b>b</b> (	3.5 + 3.7 ) X 0.8	<b>©</b> 3.5 + ( 3.7	7 X 0.8 )	<b>d</b> 3.5 X 3.7 + 0.8
4 The mathematical expre	ssion " 4.5 – 0.3	÷ 1.2 " is exp	pressed as	5:
a subtract 0.3 from 4.5	.Then divide by	1.2		
<b>b</b> divide 0.3 by 1.2. The	n subtract 4.5			
© subtract 4.5 from 0.3	.Then divide by	1.2		
<b>d</b> divide 0.3 by 1.2. The	n subtract the i	esult from 4.	5	
5 5.6 + 0.5 - 0.4 X 1.5 =				
<b>a</b> 6.1 – 0.6 <b>b</b> 5	.6 + 0.1X 1.5	<b>©</b> 5.6 + 0.5	- 0.6	<b>d</b> 6.1 – 0.4 X 1.5
Second: Use the ord	der of operat	ions to eva	luate ea	ch expression
1 9.2 + 2.5 X 4 ÷ 5	2 5 X [ 4.8 ÷ (	8.4 - 7.2 ) ]	3 (6.7 –	2.3) X (8.5 + 2.5)
=	=		=	
=	=	***************************************	=	
=	=	************************	=	
Third Place grou	pina symbols	(parenthe	ses and	/or brackets) ii
		**		es. Sometime:
· ·	ymbols are n	_		
1 (The value is 2.2)	1		3 (The	value is 10.38 )
2.5 – 3 X 0.07 + 0.03		•		4 X 2 – 2.42
=				
=	=	***************************************	=	······
=	=	•••••	=	
=	=		=	
Fourth Answer the	e following:			
Hoda is filling identical vas	_	or flower arra	ngements	s at the florist.
She starts with 15.75 liters			_	
finished, Hoda still has 3.75		-		
Give your answer in liters. V				
•				

### 6.2 Analyzing Numerical Patterns

### Exercises on Lessons 5-7

Identifying Numerical Patterns, Extending and Creating
Numerical Patterns & Solving Problems with Numerical Patterns

1 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

1	input	Output	2	Input	Output	3	Input	Output	4	Input	Output
	15			18	10		5	*****		1	6
	17	,		28			7	10		2	7
	21	14			30		9	12		3	
	25	18			40		•••••	14		4	
	*****	20		58	50			16		5	

Rule: Rule: Rule:

5	Input	Output	6	Input	Output	7	Input	Output	8	Input	Output
	39			3	9		6	************		2	6
	33	*****		6			10	5		4	12
	27	9			27		14	7		6	
	21	7		************	36		*****	9		8	
	**********	5		15	45		*****	11		10	
	Rule:			Rule:			Rule:			Rule:	

3 Use the rule shown and complete the table:

1	Input	Output	2	Input	Output	3	Input	Output	4	Input	Output
	15	*****		3	***********		######################################	12		1	<b>*</b> 0.6.0**********
	**********	5			27		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	16		2	
	35			15				20		3	
	*************	9			72		*****	24		4	
	55			27	•••••		***********	28		5	
	Rule:	n ÷ 5		Rule:	n X 3		Rule:	n – 4	•	Rule	n + 7

4 Using the given information, list the first five numbers in the pattern:

pattern:	
1 Starting number: 3, Rule: n + 5	2 Starting number: 1.2, Rule: n + 0.3
3 Starting number: 30, Rule: n X 3	4 Starting number: 45, Rule: n – 4.5
5 Starting number: 2, Rule: n x3	6 Starting number: 0.005, Rule: n X 10

7 Starting number: 32 , Rule: n ÷ 2	8 Starting number: 1, Rule: n ÷ 0.5
	,,
Starting number: 4, Rule: n X3 + 1	10 Starting number: 2, Rule: (n+1)X2

Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

1	Input	Output
	7	•••••
	11	**********
	15	4
	19	5
	***********	6
	27	7

•	0
Input	Output
3	6
9	8
15	10
**********	12
27	414.00000000000000000000000000000000000
33	

Input	Output	
1	***************************************	
2	10	
3	14	
4	18	
********	22	
•••••	26	

	Input	Output
	4	9
	6	13
	8	17
Ī	10	
	12	
	14	***********
Ī	Dulo	

Rule:	***************************************
-------	---

lule:	***************************************
-------	---

Rule:	•••••	
-------	-------	--

Rule:	
-------	--

8

5	Input	Output	
	1		
	2		
	3	27	
	4	64	
	******	125	
	6	216	

		210		
Rule:	••••	••••		

Input	Output	
1	6	
2	11	
3	16	
	21	
5		
6		
		•

Rule:	***************************************

Input	Output
9	
11	4
13	5
15	6
	7
***************************************	8

Rule:	***************************************

Input	Output
2	4
4	16
6	36
8	
10	
12	

#### 6 Use a pattern to help you solve each problem:

1 When Salma was six years old, her brother Alaa was twice her age. Complete the following table and answer:

Salma's age	Alaa's age
6	
7	**********
	16
15	***********
20	***************************************

- What is the age of Alaa when Salma is 12 years old?
- **b** What is the age of Salma when Alaa was 8?

Hussam makes pancakes with sugar, he uses 150 gm of flour to make one pancake. Use the pattern to complete the table:

Number of Pancakes	Amount of Flour (gm)
1	150
2	
3	450
4	
5	

- a How much flour will it take to make 6 pancakes?
- **b** How many pancakes does Hossam make using **1.5** kg of flour?

3 Fouad reads for 3 hours per day. Complete the following table and answer:

Number of	Number of
Days	Hours
2	***************************************
5	
	21
. 8	
10	

- a How many hours does Fouad read in 6 days?
- **b** How many days does Fouad read for 9 hours?

4 Malak travels in her car at a speed of 80 km per hour. Complete the following table and answer:

Number of Hours	Distance (km)
1.5	
2	
*************	200
3	
•••••	400

- What is the distance traveled by her in 4 hours?
- **b** How many hours does it take for Malak to travel 360 km?

# Assessment On concept

First.	Choose	the	correct	answer:

- 1 The pattern rule of ( 15 , 21 , 27 , 33 , 39 , 45 ,......) is ..........
  - an + 6
- **b** n 6
- **G** n X 6
- 1 n ÷ 6
- 2 The next number in the pattern (1,1,2,3,5,8,13 .....) is .......
  - **a** 42

**6** 24

**G** 16

**d** 21

- - **a** 2.5 , 3.5 , 4.5 , 5.5 , 6.5 , ........
  - © 4,4.5,5,5,5.5,6,6.5,......
- **6** 2 , 3.5 , 5 , 6.5 , 8 ,......

5 The rule of the following pattern is

- **d** 2,4.5,7,9.5,12,14.5,......
- The rule of the following pattern is

Input	Output
5	11
6	13
7	15

- an X 2 + 1
- (n+1)X2
- $G_{n+1}X_{2}$
- $\bigcirc$  (n + 2) X 1

- Output Input 31 10 34 11 37 12
- **a** n 1 ÷ 3
- $n \times 3 + 1$
- **G**  $(n-1) \div 3$
- **1**  $n \div 3 1$

#### Second: Using the given information, list the first five numbers in the pattern:

#### Third: Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

- 1 3,8,13,18,......
- 2 0,4,8,12,.....

- Rule:
- Rule:

#### Fourth: Answer the following:

The library charges a fine on the first day of EGP 3 in case of the delay in returning the book. Another fine is charged for each additional day of  $\frac{2}{2}$  pounds.

If Khaled delays returning the book for three days, what is the amount that he will pay for the delay? (Indicate your answer)



سلسلة كتب الاستان









### **Number Sense and Operations**

Unit 1: Decimal Place Value and Computation

Pages 4 - 32

**Unit 2: Number Relationships** 

Pages 33 - 59

Unit 3: Multiplication with Whole Numbers

Pages 60 - 78



# Mathematical Operations and Algebraic Thinking

Unit 4: Division with Whole Numbers

Pages 79 - 102

Unit 5: Multiplication and Division with Decimals

Pages 103 - 132

Unit 6: Numerical Expressions and Patterns

Pages 133 - 143



## Number Sense and Operations



## Units of the Theme



## Decimal Place Value and Computation

Concept 1.1: Decimals to the Thousandths Place
Concept 1.2: Adding and Subtracting Decimals

Unit 2

### Number Relationships

Concept 2.1: Expressions, Equations, and the Real World Concept 2.2: Factors and Multiples

Unit 3

## Multiplication with Whole Numbers

Concept 3.1: Models for Multiplication

Concept 3.2: Multiplying 4-Digit Numbers by 2-Digit Numbers

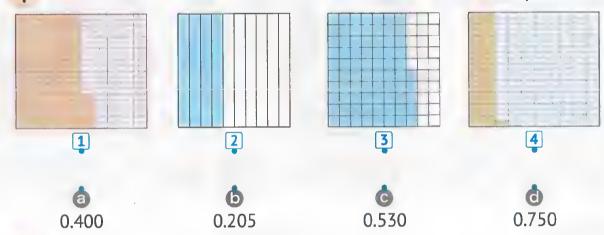
# Decimal Place Value and Computation

## 1.1 Decimals to the Thousandths Place

## Exercises on Lessons 1 & 2

The Journey Begins & Decimals to the Thousandths Place

1 Match each decimal model to the decimal number it represents:



2 Write each fraction as a decimal:

3 Complete the following:

- 3 45,025,003.36 (in word form):

4 9,200,000,065.027 (in word form):
In 457,258,350.68, the digit 6 is in the place and its value is
•
In 500,725,235.102, the digit in the Hundredths is and its value is
7 The value of 9 in the Hundredths place is
8 If the value of 3 is 0.3, then its place value is
9 The greatest decimal number that can be formed from the digits (6, 3, 9,
8, 2, 7) up to the Hundredths is
10 The greatest decimal number that can be formed from the digits (8, 3, 2,
0, 8) up to the Tenths is
11 The smallest number that can be formed from the digits $(3, 9, 0, 5)$ up to
the Thousandths is
12 The smallest number that can be formed from the digits (8, 3, 5, 8, 2, 7, 2)
up to the Hundredths is
13 0.523 = thousandths, hundredths, tenths.
= 7 tenths, 9 thousandths.
= 2 hundredths, 4 thousandths.
Choose the correct answer:
1 Seven milliard, fifty thousand and seven hundredths =
(7,050.07 • 7,000,050.07 • 7,000,050,000.07 • 7,000,050,000,.07)
2 56,000,500.035 (in word form):
(fifty-six thousand, five hundred and and thirty-five thousandths
or fifty-six million, five hundred and thirty-five thousandths
of fifty-six million, five hundred thousand and thirty-five thousandths
or fifty-six million, five hundred thousand and thirty-five hundredths)

HEME Number Sense and Operations	
The place value of 5 in <b>5</b> 28,239.247 is	
(Hundred Millions @ Hundred Thousands @ Hundreds @ Hundred	lths )
4 The value of 0 in 247,369.205 is	
$(0.001 \odot 0.01 \odot 0.1$	<u>o</u> 0)
5 If the value of 7 is 0.7, then its place value is	
(Tenths @ Ones @ Tenths @ Hundre	dths)
6 If the place value of 3 is Thousandths, then its value is	
(0.003 • 0.03 • 0.03 • 3	,000)
$7 + \frac{45}{100} = \dots$ (4.45 @ 445 @ 4.045 @	45.4)
8 2.053 =	253 ,000)
9 The greatest decimal number that can be formed from the digits	
(9, 2, 2, 3, 7, 9) up to the Hundredth is	
(9,973.22 @ 2,237.99 @ 99,732.2 @ 22,37	79.9)
10 The greatest decimal number that can be formed from the digits (6	, 8,
9, 4) is (9.864 <b>o</b> 98.64 <b>o</b> 986.4 <b>o</b> 9	,864)
11 The smallest decimal number that can be formed from the digits	
(6, 2, 0, 8, 3) up to the Thousandths is	
(2,036.008 @ 86.302 @ 2,036.8 @ 20	.368)
12 The number of Tenths in 0.386 is parts. (3 @ 30 @ 83 @	386)
13 6 hundradths = (6 @ 0.60 @ 0.060 @ 0	

14 6 tenths, 9 thousandths = ...... (0.609 @ 0.069 @ 6.009 @ 0.906)

## Assessment on Lessons 1&2

First: Complete the following	owing:	
1 Nine milliard, ninety thousand a		gits):
2 6,200.09 (in word form):		
The place value of <b>9</b> in 5 <b>9</b> 6,258.		
4 The greatest decimal number fo	rmed from the digits (9, 8,	0, 2, 9, 5) up to the
Hundredths is		
<b>5</b> The value of <b>0</b> in 653,852.2 <b>0</b> 8 is		•
Second: Choose the corre	ct answer:	
1 Four hundred million, thirty thou	sand and thirty hundredth	าร =
<b>a</b> 400,030,000.30 <b>b</b> 400,030	0.03	<b>d</b> 430.30
<b>2</b> 3,000,003.003 (in word form):	4	
a Three hundred, three million	and three thousandths	
<b>6</b> Three million, three and three	e thousandths	
Three million, three thousand	and three thousandths	
Three hundred thousand, three	ee and three thousandths	
In, the place val		
<b>a</b> 500.46 <b>b</b> 46.005		<b>d</b> 46,500
The <b>smallest</b> decimal number th to the Thousandth is		digits (5, 2, 3, 7, 2) u <sub>l</sub>
<b>a</b> 22,357 <b>b</b> 2,235.7	<b>©</b> 223.57	<b>@</b> 22.357
The digit that represents the Tho	ousandths in 4,568.178 is .	•
<b>a</b> 1 <b>b</b> 7	<b>©</b> 8	<b>G</b> 4
Third: Match:		
1 Nine hundred million and nine I	nundred thousandths	<b>a</b> 900,000.90
2 Nine hundred thousand and nin	ety hundredths	<b>b</b> 909.009
3 Nine hundred, nine and nine tho		<b>9</b> 900,000,000.900
Mine hundred million and nine t	thousandths	<b>d</b> 900,000.09

5 Nine hundred thousand and nine hundredths

900,000,000.009

## Exercises on Lessons 3 & 4

#### Place Value Shuffle & Composing and Decomposing Decimals

- 1 Find the result of each of the following using the place value chart:
  - 1 4.52 X 10 = .....

Thousands		Ones			Point		Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

2 456.258 X 10 = .....

Thou	sand	5	O	nes		Point	4	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths Hundredths Thouse		Thousandths	

**3** 56.28 ÷10 = .....

Thousands			Oı		l Point	Decimals			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

4 253.9 ÷ 10 = .....

Thou	sand	5	Oı	nes		l Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths Hundredths Thousan		

5 9832 ÷10 = ....

	sands			nes		Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

#### 2 Complete the following:

- The value of ...... increased when multiplying by 10 to 8.57.
- 3 The value of 36.6 ....................... when multiplying by 10 to 366.
- 5 The value of ...... increased when dividing by 10 to 24.8.
- 6 The value of 1.25 ...... when dividing by 10 to 0.125.
- | 7 | 893 ÷ 10 = ...... | 8 | 6.38 ÷ 10 = .....
- 9 .....  $\div 10 = 2.7$
- 10 458.36 X 10 = .....
- 11 X 10 = 25
- 12 3.000 + 500 + 0.8 + 0.07 + 0.006 = ......
- **13** 25 + 0.025 = .....
- 14 200 + 30 + 5 + 0.48 = ......
- **15** 63 + 0.025 = **16** 43.043 = 43 +
- **17** 8.258.36 = 8,000 + 200 + 50 + 8 + .......
- 18 95.905 = .....(in expanded form)
- 19 85.36 = ...... Tens + ...... Ones + ..... Tenths + ...... Hundredths.

#### 3 Choose the correct answer:

1 The value of ...... increased when multiplying by 10 to 25.26.

(25.26 **o** 252.6 **o** 2.526 **o** 2,526)

The value of ......decreased when dividing by 10 to 0.026.

 $(0.026 \odot 0.26 \odot 2.6 \odot 26)$ 

3 X 10 = 258

(2580 **1** 258 **1** 25.8 **1** 2.58)

4 45 X 10 = .....

(450 **1** 0.45 **1** 4.5 **1** 40.5)

5 | 8.05 ÷ 10 = .....

- (805 @ 8.5 @ 80.5 @ 0.805)
- 6 When all digits of a number move one place to the left, its value
  - (decreases or increases or does not change or other)
- When all digits of a number move one place to the ....., its value decreases. (right or left or other)

- **8**  $23 + 0.02 + 0.003 = \dots$  (2,302,00 or 2,323 or 23.023 or 23.23)
- 9 824.12 = ..... (824 + 1 + 2 @ 824 + 12 @ 824 + 0.12 @ 800 + 200 + 4 + 10 + 2)

#### 4 Match:

- 1 58.25 X 10
- 2 58.25 ÷ 10
- **3** 582.5 X 10
- 4 582.5 ÷ 10

- **a** 58 + 0.25
- $\bigcirc$  582 + 0.5
- **©** 5 + 0.825
- **d** 5,800 + 25
- 5 Use the digits (8, 5, 7, 0) and form the smallest decimal number up to the Thousandths, then multiply the result by 10, and complete:

Whole Number								Decimal	S	
	ısand			nes		mal P				
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decir	Tenths	Hundredths	Thousandths	

- 1 The value of \_\_\_\_\_ (increased/decreased) when multiplying by 10 from \_\_\_\_\_ to \_\_\_\_\_.
- The value of \_\_\_\_\_ (increased/decreased) when multiplying by 10 from \_\_\_\_\_ to \_\_\_\_\_.
- Therefore, the value of the whole number (increased/decreased) by a factor of 10 from to , so

## Assessment on Lessons 3&4

First.	Choose	the	correct	answer:
--------	--------	-----	---------	---------

1 The value of 45.26	increases when r	multiplying by	v 10 to
----------------------	------------------	----------------	---------

$$\bigcirc$$
 2 + 0.005

$$\bigcirc$$
 20 + 0.05

#### Second: Complete the following:

#### Third: Match:

#### Fourth: Put (1) or (1) in front of each statement:

$$\boxed{3}$$
 2.725 ÷ 10 = 27.25

) 
$$\boxed{5}$$
 200 + 20 + 0.2 + 0.002 = 220.202 (

## Exercises on Lessons 5 & 6

#### **Comparing Decimals & Rounding Decimals**

#### Complete using (<, = or >):

1 456.25

45.625

**2** 79.02

790.2

3 42.9

42,900

4 12.500

12.050

**5** 98.78

103.5

6 90.05

900.5

7 8.5 X 10

85 ÷ 10

8 9.08 X 10

9.08 ÷ 10

9 0.5 X 10

50

**10** 85.03

80 + 5 + 0.03

**11** 75 + 0.05

75.50

**12** 107.05

One hundred, seventy-five hundredths

13 800,008.3

Eight hundred, eight thousand and three tenths

14 700,050,005.50

Seven hundred million, fifty thousand, five and

fifty hundredths

15 400 + 4 + 0.4 + 0.004 Four hundred four, four hundred and forty

thousandths

#### 2 Circle the greatest number:

**1** 27.03

270.3 . 2.703

**2** 56.38 . 56.038 . 560.38

**3** 180.06 . 18.006 . 180.60

4 900.900 , 900.090

, 900.009

#### 3 Circle the smallest number:

1 100.50 . 105.05 . 150.05

**2** 900.25 . 90.025 . 902.05

**3** 1,000.02 , 100,200 ,

100.002

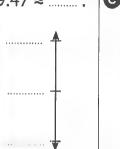
8.237 .

80.237 , 802.037

#### 4 Round each of the following using the midpoint strategy:

1 To the nearest whole number:







**d** 99.87 ≈ ......



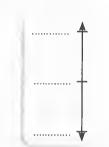
To the nearest Tenth:







6 56.874 ≈ ......



To the nearest Hundredth:











4 To the nearest Thousandth:





**©** 0.9999 ≈ ......



	Downal analy of	the fellowing	numbers.	union the	rounding	rulo etrate	2011
0	Round each of	the following	IIIIIInc 2	using the	rounding	Tuic strate	-93

1 To the nearest whole number:

2 To the nearest Tenth:

3 To the nearest Hundredth:

4 To the nearest Thousandth:

6 Complete the following:

(To the nearest 
$$\frac{1}{1.000}$$
)

9 
$$56.234 \div 10 =$$
  $\approx$  (To the nearest two decimal places)

7	Choose	the	correct	answer	•
	CHOOSE	uie	COLLECT	aliswei	

1 56.73 < ...... (56.69 @ 56.8 @

(56.69 **o** 56.8 **o** 56.075 **o** 56.729)

2 98.25 > .....

(100.05 • 98.52 • 98.263 • 98.205)

**3** 56.5 X 10 565 ÷ 10

 $(<\mathbf{op}=\mathbf{op}>\mathbf{op}\leqslant)$ 

4 0.32 X 10 3.2 ÷ 10

 $(<\mathbf{or}=\mathbf{or}>\mathbf{or}\leqslant)$ 

**5** 56 < ...... < 57

(562 @ 57.3 @ 5.6 @ 56.02)

6 .....≈ 2.5 (To the nearest 0.1)

(2.445 @ 2.456 @ 0.536 @ 2.05)

**7** .....≈ 69 (**To the nearest whole number**)

(69.5 or 68.4 or 68.369 or 69.45)

**8** 56.298 ≈ 56.30 (**To the nearest** )

(100 or 10 or 0.01 or whole number)

**9** 63.245 ≈ 60 (**To the nearest** .....)

(0.01 **a** 0.1 **a** 10 **b** whole number)

**10** 56 + 0.02 + 0.007 ≈ ...... (**To the nearest two decimal places**)

(56.2 **o** 56.3 **o** 56.02 **o** 56.03)

#### 8 Arrange the following numbers:

**1** 56.25 , 56.52 , 56.025 , 56.502 , 56.052

(Ascendingly)

**2** 6.005 , 5.006 , 50.06 , 60.05 , 5.060

(Descendingly)

## Assessment on Lessons 5&6

#### Choose the correct answer:

1 45 + 0.5 450 + 0.05

**a** <

**C** =

**(1)** <

2 .....≈ 75.3

**a** 75.03

**b** 75.39

**©** 750.3

(To the nearest Tenth) 75.34

78.098 ≈ ......

(To the nearest whole number)

**a** 78.1

**C** 79

**a** 7

(To the nearest Hundredth)

(To the nearest .....)

**4** 68.567 ≈ 68.57

a whole number **b** Tenth

C Hundredth

**1** Thousandth

≈ 20.02 **a** 20.002

20.024

**C** 0.025

**©** 20.200

#### **Second:** Round the following numbers:

#### Third: Compare using (<, = or >):

1 40.02 400 + 2

2 50.600 5.006

**3** 500 + 90 + 3 + 0.8 + 0.07 593.87

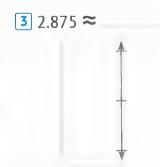
4 300.03 Three hundred and three tenths

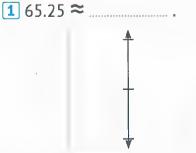
**5** 25 + 0.03 + 0.008

Twenty-five and eighty-three hundredths

#### Fourth: Label the midpoint of the number line. Place the given decimal number at its proper location, and then round:

2 80,958 ≈ ......





To the nearest whole number. To the nearest Tenth. To the nearest Hundredth.

# Assessment On Concept

499699111611		concept	U
First Complete the	following:		
1 Five milliard, five million, five	e hundred thousar	nd and five thous	andths
=			(In digits)
The smallest decimal number	r that can be form	ed from the digit	s (9,8,0,5,7)
up to the Hundredths is	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
<b>3</b> In 8,567.4 <b>9</b> 1, the place value	of 9 is hundredth	s and its value is	
4 The value of 586.47 is increa	sed when multipl	ying by 10 to	
5 458.025 ≈		(To ti	ne nearest Tenth)
Second Choose the co	rrect answer:		
1 The greatest decimal numbe		ed from the digit	cs (8,5,9,0,7)
is		2	,
<b>a</b> 89,750 <b>b</b> 9,87			-
The value ofis		lividing by 10 to	75.2.
<b>a</b> 7,520 <b>b</b> 7.52		52	<b>d</b> 75.200
3 4,000 + 40 + 0.4 + 0.04 =			
<b>a</b> 4,040.44 <b>b</b> 44.4	.4	144.04	<b>d</b> 4,400.40
<b>4</b> ≈ 75.60 <b>a</b> 75.694 <b>b</b> 75.6	07		arest Hundredth)
		75.599	<b>d</b> 75.697
Compare using			
247.100	2 45.25		
4 20.05 20 + 0.05	5 1,000 + 50 + 0	.2 + 0.008	1,500.280
Fourth: Match:			
1 Three thousand and three t	nousandths =		<b>a</b> 0.15
2 150 thousandths =			<b>5</b> 3,000.003
3 400 + 20 + 0.1 + 0.008 =	•••••••••••••••••••••••••••••••••••••••		<b>©</b> 20
<b>4</b> 45.95 X 10 =	(To the nearest H	lundredth)	<b>d</b> 420.108
	(10 the hearest n	unureum)	<b>e</b> 459.5

### Answer the following:

Mazen is planning a trip from Cairo to El Fayoum. He will travel **147.72** kilometers. Round the distance to the nearest whole number.

## 1.2 Adding and Subtracting Decimals

## Exercises on Lessons 7-9

Estimating Decimal Sums, Modeling Decimal Addition & Thinking Like a Mathematician

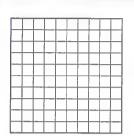
#### Estimate the sum of each of the following:

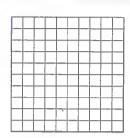
1 Using rounding to the nearest Tenth strategy:

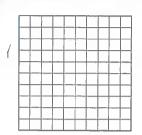
2 Using benchmark decimals strategy:

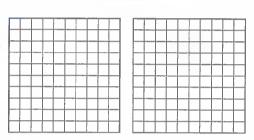
3 Using Front-End Estimation strategy:

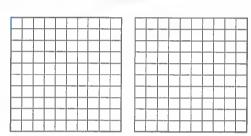
#### 2 Add using the decimal model:











#### 3 Add using the place value table:

	ısand			nes		Point			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
	,								

	ısand			nes		Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths
						•			

Thousa	ands		Or	nes		Point	Decimals		
undreds Te	ens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths
		nu de de es							
		- new right late from							

4 69,586.35 + 892 .9 = ......

Thou	ısand	S	Oı	nes		oint		Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal P	Tenths	Hundredths	Thousandths	
						-				

**5** 69,245.7 + 36.578 = ......

Thou	ısand	S	Oı	nes		oint	Decimals		S
Hundreds	Tens	Ones	Hundreds	Tens	Ones	imal F	Tenths	Hundredths	Thousandths
						Dec			
			r						<b>,</b>

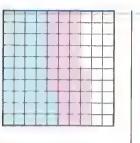
#### 4 Find the result:

 1
 56.458
 2
 483.258
 3
 82.025
 4
 0.369

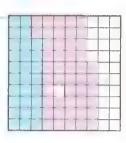
 +
 7.58
 +
 736.27
 +
 129.975
 +
 +
 12.57

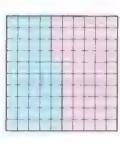
- 5 56.367 + 56,246.34 = ......
- **6** 56.31 + 8,000.249 = .....
- 7 39.56 + 245.36 = .....
- 8 638.47 + 56,324.98 = .....

### Write an expression to match the following models, and write an addition problem, then find the result:

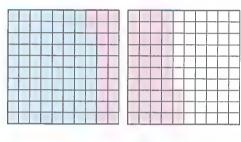


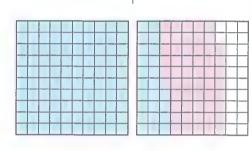












#### 6 Complete the following:

1 7 Thousandths + 8 Thousandths = ............ Thousandths.

Place value: Hundredths, Thousandths.

2 45 Thousandths + 15 Thousandths = ...... Thousandths.

Place value: Hundredths, Thousandths.

3 456 Thousandths + 265 Thousandths = ...... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

4 5 Hundredths + 68 Thousandths = ........... Thousandths.

5 15 Hundredths + 28 Hundredths = ...... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

6 3 Tenths + 28 Thousandths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

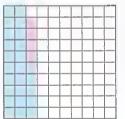
#### 7 Complete the following:

- 4 The estimate of the sum of 56.36 + 57.63 using rounding to the nearest 0.1 strategy is ......
- 5 The estimate of the sum of 7.59 + 3.89 using Front-End Estimation
- 6 15 Hundredths + 37 Hundredths = ...... Hundredths.
- 7 5 Tenths + Hundredths = 560 Thousandths.
- **8** 45.36 + ..... = 57.79
- 9 0.45 + = 1

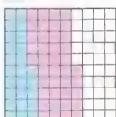
 $1000.2 + 0.5 + \dots = 2$ 

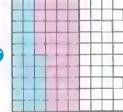
#### 8 Choose the correct answer:

f 1 The model representing the addition problem 0.25 + 0.4 is ...............



Of

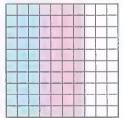




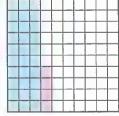
**O** 



The model representing the addition problem 0.3 + 0.4 is ......



or



O



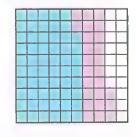
or



The addition problem that represents the opposite

 $(0.58 + 2.5 \odot 5.8 + 0.25)$ 

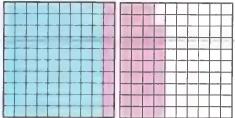




4 The addition problem that represents the corresponding model is



$$(0.09 + 0.48 \odot 0.9 + 0.48)$$



- 5 The benchmark decimal closest to 0.45 is .................. (0 @ 0.5 @ 1 @ 1.5)
- 6 The benchmark decimal closest to 2.01 is .................. (1 @ 1.5 @ 2 @ 2.5)

- 9 0.7 + 1.2 + ..... = 2

 $(1.9 \odot 1.1 \odot 0.1 \odot 0.3)$ 

10 0.256 + ..... = 1

(0.854 @ 1.744 @ 0.8 @ 0.744)

#### 9 Answer the following:

1 Malak wants to cycle 40 km in a week. By Thursday, Malak had covered 34.99 km, and on Friday she had covered 4.01 km.

Did Malak achieve her goal or not? (Show your answer)

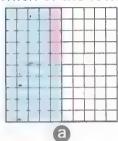
- 2 A merchant bought 953.543 kilograms of fruit. The next day, he bought 240,615 kilograms. Estimate the total amount bought by the merchant in the two days. Use the strategy of rounding to the nearest 0.1.
- Fayrouz has 5 meters of fabric. If she needs 3.75 meters to make a dress, and 1.23 meters to make pants, estimate the length of the fabric that Fayrouz needs. Use the strategy of rounding to the nearest whole number. Is the fabric that she has enough or not?

## Assessment on Lessons 7-9

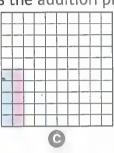
#### First Choose the correct answer:

- 1 The expression that expresses the corresponding model is
  - $\bigcirc$  0.28 + 0.15
- $\bigcirc$  2.8 + 1.5
- $\bigcirc$  2.8 + 0.15
- 0.28 + 1.5

- 2 Which of the following models expresses the addition problem 0.45 + 0.5?









- **3** 5.25 + 32.7 = ......
  - **a** 37.92
- **6** 8.52
- **©** 85.2
- **d** 37.95

- 4 0.75 + ..... = 1

  - **a** 1.25 **b** 0.25
- **©** 0.35
- **a** 1.75

- **5** 65.5 + 5 = ......
  - **a** 66
- **b** 70.5
- 65.55
- 655.5

#### Second: Complete the following:

- 1 The estimated sum of 4.6 + 5.3 using rounding to the nearest whole number
- The estimated sum of 6.12 + 3.28 using rounding to the nearest Tenth strategy is .......
- 3 4 Hundredths + 27 Thousandths = ...... Thousandths.
- 4 452.8 + 2.782 = ......
- **5** ..... + 0.62 = 1

#### Third Match:

- 1 3.5 + 2.5
- $\boxed{2} 0.35 + 0.25 = \dots$
- $\boxed{3} 0.35 + 2.5 = \dots$
- 4 3.5 + 0.25 =
- 5 35 + 25 = .....

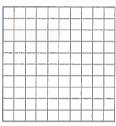
- **a** 0.6
- **3** 2.85
- **6**
- 60
- **a** 3.75

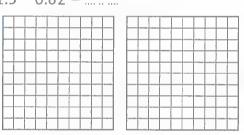
## Exercises on Lessons 10-13

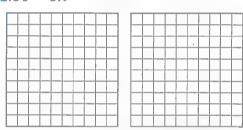
Subtracting Decimals, Estimating Decimal Differences,
Subtracting to the Thousandths Place & Decimal Story Problems

#### 1 Subtract using the decimal model:









#### 2 Subtract using the place value table:

	sand!			Ones E Decimals		- Decimates			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
						•			

	sands			nes		Decimals			
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths
						•			
						-			

**3** 45.369 – 9.98 = .....

Thou	sand	5	O	nes	- tay	Point	Decimals		S
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
						•			

4 56.023 – 9.88 = .....

Thou	ısands	5	0	nes		Point	Decimals		s
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
						•			

5 1,250 - 889.56 = .....

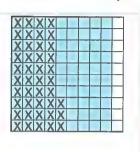
Thou	isands	S	O	nes		Point:	Decimals		S
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decimal	Tenths	Hundredths	Thousandths
						٠			

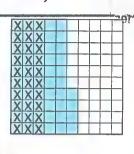
**6** 56,025.35 – 9,258.9 = ......

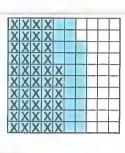
	isands			nes		Point	Decimals		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Decima	Tenths	Hundredths	Thousandths

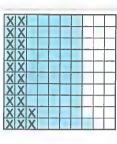
#### 3 Find the result:

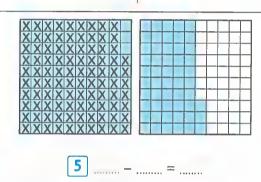
### Write an expression to match the following models, and write the subtraction problem, then find the result:

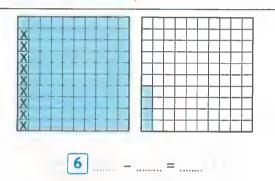












#### Estimate the difference of each of the following:

1 Using rounding to the nearest Tenth strategy:

**a** 75.02 – 27.18  **6** 9.235 - 5.2

© 25,152.24 – 105.45 ..... = .....

**e** 56.321 – 9.8

**1** 765.3 – 7.589

**d** 45.258 – 7.39 ..... – ..... = .......

2 Using benchmark decimals strategy:

**a** 0.99 – 0.51

**b** 25.01 – 3.45

**©** 8.9 – 2.001

..... – ..... = .......

..... – ..... = ......

**1**.98 – 0.53

**e** 7.01 – 0.65

..... – ..... = .......

 $\bigcirc$  15.01 - 7.96

**3** Using Front-End Estimation strategy:

<b>a</b>	315.	36 –	89.65

0 3.49 - 2.04

6 Complete the following:

1 79 Thousandths – 15 Thousandths = ..... Thousandths.

Place value: Hundredths, Thousandths.

2 82 Thousandths – 47 Thousandths = ...... Thousandths.

Place value: Hundredths, Thousandths.

3 620 Thousandths – 174 Thousandths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

4 14 Hundredths – 37 Thousandths = \_\_\_\_\_ Thousandths.

Place value: Tenths, Hundredths, Thousandths.

5 63 Hundredths – 18 Hundredths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

6 5 Tenths – 24 Thousandths = ..... Thousandths.

Place value: Tenths, Hundredths, Thousandths.

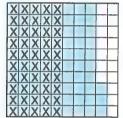
7 Complete the following:

4 The estimate of 9.99 – 7.58 using the benchmark decimal strategy is \_\_\_\_\_.

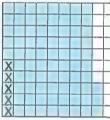
- 5 The estimate of the sum of 75.23 9.25 using Front-End Estimation
- 6 75 Hundredths 9 Hundredths = Hundredths
- 7 | 7 Tenths ...... Hundredths = 650 Thousandths.
- 8 963.16 ..... = 56.35
- 9 1 ..... = 0.45
- -12.5 = 35.73

#### Choose the correct answer:

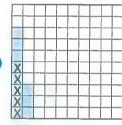
1 The model representing the subtraction problem 0.83 – 0.5 is ......



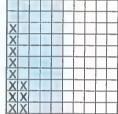
0



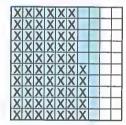
**O** 

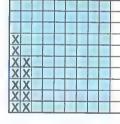


**O** 

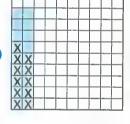


The model representing the subtraction problem 0.8 – 0.65 is .......

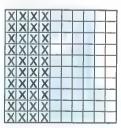




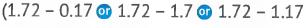
**O** 



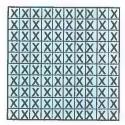
- The subtraction problem that represents the
  - **o** 83 40 **o** 0.83 0.04)

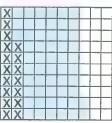


4 The subtraction problem that represents the opposite model is .............



**172 - 117** 





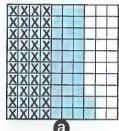
- o T  -	Number Sense and Operations	
	5 The estimate of 78.089 – 5.247 us	sing rounding to the nearest 0.01
	strategy is	(72.84 <b>o</b> 72.842 <b>o</b> 72.9 <b>o</b> 65
	6 The estimate of 25.368 – 5.247 us	sing rounding to the nearest 0.1
	strategy is	(20 or 20.2 or 20.12 or 25.121
	7 The estimate of 86.25 – 14.89 usi	ng rounding to the nearest whole
	number strategy is	(71.36 <b>o</b> 71.4 <b>o</b> 71 <b>o</b> 70
	8 3 Tenths – 15 Thousandths =	Thousandths.
		(2.85 @ 285 @ 0.15 @ 0.285
	9 12.78 = 8.8	(3.98 <b>or</b> 21.58 <b>or</b> 11.9 <b>or</b> 13.66
[	10 1 = 0.214	(786 <b>o</b> 0.786 <b>o</b> 1.214 <b>o</b> 0.213
9	Answer the following:	l le cht e seférentes for 7520 3
L		le bought a refrigerator for <b>7,520.2</b>
		or <b>5,640.5</b> pounds. How many pound
	does Mohamed have left?	
l		which the train traveled a distance of
	239.47 km. What is the remaining	g distance from the road?
Į		per day. If he drinks 0.5 liters in th
		now many liters of water does he drin
	in the evening?	

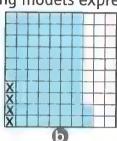
## Assessment on Lessons 10-13

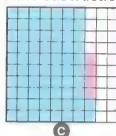
#### **Choose the correct answer:**

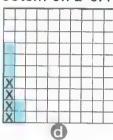
- - **a** 0.42 0.27
- $\bullet$  4.2 2.7
- $\bigcirc$  4.2 0.27
- $\bigcirc$  0.42 2.7

- 2 Which of the following models expresses the subtraction problem 0.72-0.4?









- 7.15 2.6 = .....
  - **a** 4.55
- **6** 9.75
- **G** 6.09
- **@** 7.41

- **4** 1 ..... = 0.47
  - **a** 1.47
- **b** 1.53
- **©** 0.53-
- **(d)** 0.47

- 5 8 0.45 = .....
  - **a** 8.45
- **6** 8.55
- **C** 7.45
- 7.55

#### Second: Complete the following:

- 1 The estimated difference of 4.2 1.8 using rounding to the nearest whole number strategy is ......
- 2 The estimated difference of 18.46 7.25 using rounding to the nearest Tenth
- 3 5 Hundredths + 35 Thousandths = ....... Thousandths.
- 4 32.7 + 2.079 = .....

-0.47 = 0.53

#### Third: Match:

- **1** 15.2 5.2 **2** 1.52 0.52 **3** 15.2 0.52 **4** 152 5.2 **5** 152 52

- **a** 1
- **1**0
- **©** 100
- **14.68**
- **(2)** 146.8

#### Fourth:

Emad caught three fish whose lengths were 29.28 cm, 29.255 cm, and 35.17 cm. What is their total length? What is the difference between the longest fish and the shortest fish?....

# Assessment On concept

#### **First** Complete the following:

- 1 The estimated difference of 6.527 0.293 using rounding to the nearest Tenth strategy is ......
- 7 Hundredths + 24 Thousandths = Thousandths.
- **3** 45.25 + = 90.5
- 4 59.126 42.35 =
- 5 Tenths 5 Thousandths = ...... Thousandths.

#### Second Choose the correct answer:

- 1 The expression that expresses the corresponding model is
  - **a** 0.5 0.27

0.5 - 2.7

 $\bigcirc$  0.5 + 0.27

- $\bigcirc 0.5 + 27$
- The expression that expresses the corresponding model is ......
  - $\bigcirc$  22 + 30

0.22 - 0.03

 $\bigcirc$  2.2 + 3.0

- $\bigcirc$  0.22 + 0.30
- <u>3</u> ..... 2.45 = 0.55
  - **a** 3

50

- **©** 300
- @ 0.10

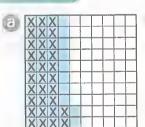
- - **a** 8.912
- **6** 200
- **©** 20

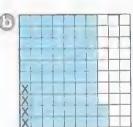
- **Q** 2
- 5 3 Tenths 33 Thousandths = ...... Thousandths.

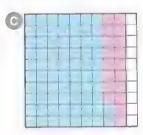
- 0.267
- **6** 267

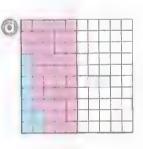
- **Q** 2.67
- @ 26.7

#### Match each model to its expression:









- 1 0.72 0.04
- 2 0.42 0.32
- 3 0.09 + 0.41
- |4| 0.72 + 0.18

#### Answer the following:

Emad had 56.5 pounds. He bought a pen for 12.25 pounds and a notebook for 15.5 pounds. How much money does Emad have left?

## **Number Relationships**

## 2.1 Expressions, Equations and the Real World

## Exercises on Lesson

**Expressions, Equations, and Variables** 

1 Choose the correct answer:
1 45 + y - 2.5 is a/an
(variable of mathematical expression of equation of other)
2 25 + 5.7 X 2 is a/an
(variable of mathematical expression of equation of other)
3 "Ahmed sleeps 7 hours a day." is a/an
(variable or mathematical expression or equation or other)
4 12 + 3.7 = y is a/an
(variable on mathematical expression on equation on other)
5 8 + x - 7 = 6.7 is a/an
(variable of mathematical expression of equation of other)
6 "The largest 3-digit number is 999." is a/an
(variable on mathematical expression on equation on other)
7 "Walaa has 1.25 kg of pistachios." is a/an
(variable or mathematical expression or equation or other)
8 The equation that represents "12.5 plus a number equals 15." is

 $(15 - x = 12.5 \odot 15 + x = 12.5 \odot 12.5 + x = 15 \odot 12.5 + 15 = x)$ 

THE MEG Number Sense and Operations
9 The equation that represents "a minus 12 equals 7.5." is
$(a - 12 = 7.5 \odot 12 - a = 7.5 \odot 7.5 - a = 12 \odot 12 - 7.5 = a)$
10 In the equation $45 - \mathbf{m} = 25$ , if $45$ represents the number of students in
one of the classes and 25 represents the number of girls in this class,
then the variable <b>m</b> represents the
(number of girls on number of boys on number of students
onumber of teachers)
11 In the equation $75 - 56.3 = y$ , if $75$ represents the money that Yassin owns,
and 56.3 represents the money he spent, then the variable y represents
шылыналыналынын тан тан тан тан тан тан тан тан тан та
(the money with him now on the money he spent the money he got,
the money that was with him first)
12 Adel is comparing the height of two plants in the garden using this
equation: $92.5 - n = 45.5$ , where $92.5$ is the height of one of them, then
the variable <b>n</b> in this equation represents
(the difference between the height of the two plants,
of the sum of the height of the two plants,
• the height of one of the plants • Adel's height)
13 The equation $36.5 + 2.15 = \mathbf{m}$ is similar to the equation
$(36.5 = y + 2.15 \odot y + 36.5 = 2.15 \odot 36.5 - y = 2.15 \odot 2.15 + 36.5 = y)$
14 If the dimensions of a rectangle are 5.5 cm and 7.2 cm, then the variable
"p" in the equation $7.2 + 5.5 + 7.2 + 5.5 = p$ represents the
(length of width of perimeter of area)
15 Huda bought a pen for 12.5 pounds and a ruler for 3.25 pounds. The

equation that represents what Huda paid is \_\_\_\_\_\_.

$$(3.25 + b = 12.5 \odot 12.5 + b = 3.25 \odot 12.5 - b = 3.25 \odot 12.5 + 3.25 = b)$$

### 2 Read the following story problems. Make an equation for each problem:

1 Hazem has 125 pounds. He bought books for 65.5 pounds.	
What is the remaining money with Hazem?	

- 2 A classroom in a school has 21 girls and 15 boys. How many students are there in this class?
- 3 A cattle farm has 90 cows and 75 buffaloes. What is the difference between the number of cows and buffaloes?
- 4 Mazen is 145 cm tall and his brother Fouad is 20 cm taller than him. How tall is Fouad?
- 5 Two numbers whose sum is **255** and one of them is **107.5**. What is the other number?

#### 3 Match:

- 1 The difference between 5.5 and 3.7
- 2 The sum of **5.5** and **3.7**
- 3.7 plus a number equals 5.5
- 4 5.5 minus a number equals 3.7
- 5 A number minus 3.5 equals 3.7

**a** 
$$3.7 + 5.5 = y$$

**b** 
$$3.7 + a = 5.5$$

$$\mathbf{C} \mathbf{m} - 3.5 = 3.7$$

**3.7** 
$$= x$$

### Assessment on Lesson 1

**d** a + 12.5 = 18.5  $\bigcirc$  12.5 +  $\mathbf{a}$  = 18.5

First: Cho	ose the correc	t answer:		
1 5 + x + 3 is	·			
a a variable	<b>b</b> a mathemati	cal expression <b>©</b> a	n equation	<b>d</b> other
27 + 5 = m + 3 is.				
a variable	<b>b</b> a mathemati	ical expression <b>©</b> a	n equation	<b>6</b> other
3 In the equation 4	45 + x = 86, if 86 i	represents the numb	er of student	ts in one of
the classes and	<b>45</b> represents the	number of boys in t	his class,	
x represents	P			
a the number of	of girls	<b>b</b> the numbe	r of boys	
<b>©</b> the number of	of students	d the numbe	r of teachers	
4 Hussam compare	ed the lengths of	two of his colleague	s and wrote 1	this equation:
1.52 - 1.25 = y, t	the letter <b>y</b> repres	ents		
a the height of	one of his collead	gues		
<b>b</b> the sum of the	ne height of his co	lleagues		
C the difference	e between the he	ights of his colleagu	es	
d the height of	Hussam			
5 The equation that	represents the diffe	erence between <b>4.25</b> a	nd <b>3.79</b> is	. 1
am = 3.79 + 4.3	25 <b>b</b> m - 3.79 = 4	4.25 <b>©</b> m – 4.25 =	3.79 <b>@</b> m	= 4.25 - 3.79
	(✓) for the cor ement:	rect statement	and (X) for	the wrong
$1 \mathbf{x} + 5 = 7.8$ " is ca	lled a mathemati	cal expression.		( )
<b>2</b> "4 + 5 = 12 - 3" i	s called an equati	ion.		( )
In the equation a	a = 2.5 + 8.7, the v	ariable <b>"a</b> " represent	s the differer	nce between
<b>8.7</b> and <b>2.5</b> .				( )
4 The equation 4.5	5 + 6.25 = x is the	same as the equation	on 6.25 + 4.5	= <b>y</b> . ( )
5 The equation the	at represents "12.	5 plus a number equ	ıals 15"	
is 12.5 + b = 15.				. (
Third: Mato	ch:			
1 The difference	between 18.5 and	12.5	<b>a</b> a = 1	8.5 + 12.5
The sum of 18.5	and 12.5			8.5 – 12.5
3 12.5 <b>plus</b> a num	ber equals 18.5		<b>©</b> 18.5	- a = 12.5

4 18.5 minus a number equals 12.5

5 A number **plus** 12.5 equals 18.5

### Exercises on Lessons 2-4

### Variables in Equations, Finding the Unknown & Telling Stories with Numbers

A	I loo montal math to	actimate the counties	ns, and then solve them:
	USE mental matrice	esumate the equation	is, and then solve them.

$$1 2.45 + n = 5.24$$

$$y - 12.40 = 3.01$$

$$38.5 - m = 4.25$$

$$|\mathbf{4}| 8.12 + \mathbf{x} = 20$$

$$6 2.377 + 3.1 = 1.52 + a$$

$$763 - 15 = p + 10$$

#### n = .....

#### 2 Complete the following:

1 If 
$$2.5 + 3.5 + y = 16$$
,

$$2$$
 If  $x + 15.2 = 14.5 + 15.5$ ,

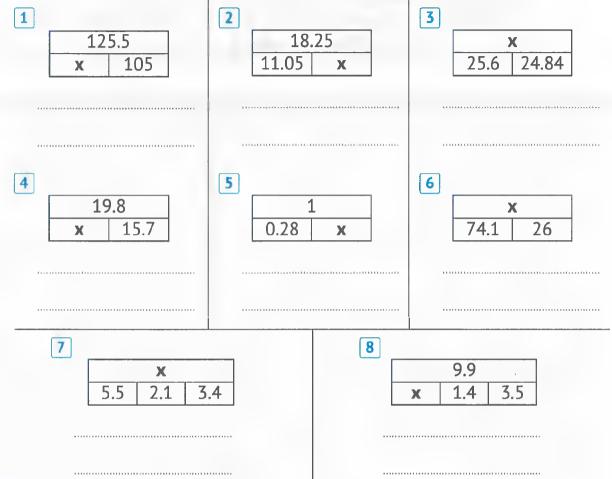
3 If 
$$95 - 65.27 = z - 29.73$$
,

4 If 
$$10.5 - 2.5 = a - 8$$
,

6 If 
$$b = 3.25$$
,

8 If 
$$r = 32.5$$
,

3 Write an equation that expresses each of the following bar models, then find the value of the variable "x":



4 Choose the correct answer:

1 If 
$$63.5 + \mathbf{m} = 108.5$$
, then  $\mathbf{m} = ....$  (45 or 172 or 45.5 or 171.5)

2 If 
$$75.5 - x = 15.5$$
, then  $x = .....$  (91 or 60 or 90.1 or 60.5)

5 If 
$$\mathbf{w} - 12.5 = 8.5 - 3.5$$
, then  $\mathbf{w} = \dots$  (17.5 or 4 or 7.5 or 9)

1	11	3	On	11	3	<b>O</b>	)	(		11	3	١
1	х	3.5	•	8	Х	•	3.5	11.3	•	Х	8	1

7	The bar model t	that expresses t	he equation s	12 - 50 is	
	The bal model (	ınat expresses t	ne equation s –	1.2 = 0.8 15	



8 The bar model that expresses the equation m - 6.5 = 15.5 is ......

1	n	n	<b></b>	6.	.5	<b>@</b>	15	5.5		n	n	١
1	6.5	15.5		15.5	m	9	m	6.5	•	6.5	9.5	

9 The equation that expresses the corresponding bar model is ......

3.	.8
У	2.7

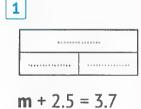
$$(y + 2.7 = 3.8 \odot y - 2.7 = 3.8 \odot y - 3.8 = 2.7 \odot y + 3.8 = 2.7)$$

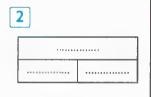
10 The equation that expresses the corresponding bar model is .....

	ν	V
4	1.8	2.5

$$(w + 2.5 = 4.8 \text{ or } 4.8 - w = 2.5 \text{ or } w = 4.8 - 2.5 \text{ or } w - 2.5 = 4.8)$$

Express each of the following equations using the bar model, and then solve the equation:









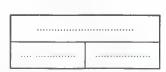
$$m + 2.5 = 3.7$$

$$u - 3.75 = 9$$

$$9.8 - \mathbf{v} = 6.7$$

$$9.1 + 2.7 = s$$

- Write an equation to represent the story problems using (n) as the variable and find its value. Use the bar models.
- 1 The distance between Cairo and Alexandria via the agricultural road is 225 km. Damanhour is located on the agricultural road, 61.3 km from Alexandria. How far is the distance between Damanhour and Cairo?



The sum of the height of the school building and the height of a tree adjacent to the building is 28.7 m. If the height of the school building is 20.5 meters, find the height of the tree.
3 If Ahmed weighed 40.7 kg two years ago and his weight increased by
6.9 kg, what is Ahmed's weight now?
7 Write a story problem representing each equation, and then solve it:
1 $9.25 + 2.75 = m$
·
$2 \times -125 = 45.8$

• THEME Number Sense and Operations

### Assessment on Lessons 2-4

#### First: Choose the correct answer:

- 1 If 78.45 + y = 90, then  $y = \dots$ .
  - **a** 78.45
- 6 90
- **©** 168.45
- **d** 11.55

- $\boxed{2}$  If  $12 \mathbf{m} = 5.125$ , then  $\mathbf{m} = \dots$ 
  - **a** 12

- **5.125**
- **17.125**

- 3 If 2.5 + 3.4 + x = 7, then x = ...
  - **a** 2.5 + 3.4 + 7
- **b** 7- 2.5 + 3.4 **c** 7 (2.5 + 3.4)
- $\bigcirc$  (7 + 2.5) 3.4

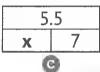
- 4 If 5.4 + 2.6 = c 1.9, then  $c = \dots$ 
  - **a** 6.1

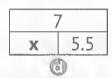
6 8

- **3** 7.3

7	7
Х	1.5
6	

)	(
7	5.5
C	



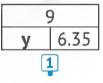


#### Second: Complete the following:

- 1 If 8.5 + y = 15, then y = ...
- 2 If 2.125 z = 6.782 6.75, then z = ...
- 3 If  $\mathbf{m} = 3.25$ , then  $\mathbf{m} + 3.275 = \dots$
- 4 The value of x in the bar model is ......
- The equation that expresses the bar model is ......
- 8.005 4.08 17
  - 2.35 У

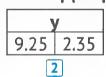
#### Third:

#### Match each model to the appropriate equation:

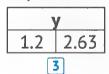


	a		
_	-	_	

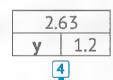
			C			
У	=	1.	2	+	2.	.63



y = 9.25 - 6.35



y = 2.63 - 1.2



#### y = 2.63 + 1.2

#### Fourth:

Ezz ran 3 days last week, he ran 5.24 km on Monday and 6.50 km on Wednesday. If the total distance he ran during the week is 15 km, what is the distance he ran on Friday? Write an equation to represent the problem, use (m) as the variable and find its value. Use the bar model.

# Assessment On concept

#### Choose the correct answer:

- 1 2.15 + x = 9.25 is
  - a a variable b a mathematical expression c an equation d other
- 2 If 28.45 y = 15.05, then  $y = \dots$ 
  - **a** 13.40
- **b** 43.50

- **C** 28.45
- **d** 15.05
- In the equation 38.50 + x = 80.25, if 80.25 represents the amount that Hossam owns and 38.50 represents the amount remaining with him, then x represents
  - a the amount he owns

the amount he has left

c the amount he spent

- **O** other
- - **a** m = 6.35 + 3.14 **b** m 3.14 = 6.35 **c** m 6.35 = 3.14 **d** m = 6.35 3.14

2.	.6
Х	4
(8	

)	<
2.6	1.4
•	

1.	.4
Х	2.6

2	.6
Х	1.4
(	3)

#### Complete the following:

- 1 If 8.5 y = 1.5 + 6.5, then  $y = \dots$
- 2 If 5.52 + 2.01 + x = 9.21, then  $x = \dots$
- 3 If m = 3.01, then  $m 0.5 = \dots$
- $\blacksquare$  Using the equation f + 0.28 = 9.07, complete the corresponding bar model.



9.5

Eine -		

Put (✓) for the correct statement and (✗) for the wrong statement:

1 "x + 3.2 = 1.2 + 7.8" is called a variable.	( )

The equation 
$$7.2 + 1.05 = x$$
 is similar to the equation  $1.05 + 7.2 = y$ .

3 If 
$$5.63 - m = 2.15$$
, then  $m = 5.63 + 2.15$ .

The equation that represents the difference between 18.5 and 12.5 is 
$$z - 18.5 = 12.5$$
.

5 The equation that represents the corresponding bar model is 9.05 + w = 11.35.

11.	.35		
9.5	W	] (	,

Fourth: Wri

Write the equation that represents each bar model, and then solve it:

1

30.258			
15.27	m		

2

,	/
3.05	4.123

3

9.2	53
х	6.7

Fifth:

#### Answer the following:

1 Bassem bought **two** watermelons with a total mass of **2.64 kg**. If the first watermelon had a mass of **1.36 kg**, what is the mass of the second watermelon? Write an equation to represent the problem, use (**m**) as the variable and find its value. Use the bar model.

	**********

2 Write a story problem representing the following equation and then solve it:  $\mathbf{w} = 9.2 - 5.025$ 

# 2.2 Factors and Multiples

### Exercises on Lessons 5 & 6

#### **Finding Factors & Prime Factorization**

1	Fill in the	missing factors	s represented	by the	variables:
- 8	1 111 111 6110	mirooma raccon	o i opi odonicou	-J	1 411 14101001

Find the factors of each of the following numbers using the method you prefer:



2 12



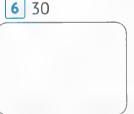
The factors of 8 are:

The factors of **12** are:

The factors of **18** are:

The factors of 24 are:

5 16



7 42

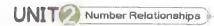


The factors of 16 are:

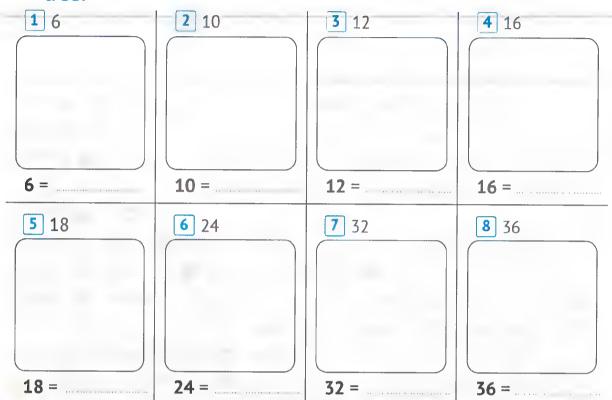
The factors of **30** are:

The factors of 42 are:

The factors of 60 are:



3 Factorize each number into its prime factors using the factor tree:



- 4 Complete the following sentences:
  - 1 The number of factors of a prime number is \_\_\_\_\_\_factors.
  - 2 All prime numbers are odd numbers, except ...... which is an even number.
  - is the smallest prime number.
  - 4 .....is the smallest odd prime number.
  - 5 .....is a number greater than one and has only two factors.
  - 6 The smallest 2-digit prime number is ......................
  - 7 The prime numbers less than 10 are
  - 8 The number of factors of 25 is \_\_\_\_\_ factors.
  - 9 1, 2, 4, 8, 16 are the factors of ......

  - 11 2 is a factor of all numbers whose Ones digit is

THEME Number Sense and Operations	
13 If the prime factors of a number are 2 X is number are	3 X 3, then the factors of this
14 If the factors of a number are 1, 2, 4, 8, to number are	hen the prime factors of this
5 Choose the correct answer:	
1is a factor of all numbers.	(0 <b>1 2 3</b> )
2 The number of factors of 9 is fact	cors. (2 <b>o</b> 3 <b>o</b> 4 <b>o</b> 6)
3is a prime number.	(51 🐨 52 🐨 57 🐨 59)
4 The two numbers 3 and 5 together are pri	me factors of
	(30 🕶 25 🕶 18 🕶 53)
5 The prime number (has no	factors on has one factor only
on has two factors	only on has three factors only)
6 is a factor of 24.	(14 <b>or</b> 18 <b>or</b> 17 <b>or</b> 12)
7 The numbers 2, 3, 5, 7 are numbers .	
(even	odd oprime opcomposite)
8 The prime factors of 12 are ( 2 x 6	<b>3</b> x 4 <b>3</b> 2 x 2 x 3 <b>3</b> 1 x 12 y
9 If the factors of a number are 1, 2, 3, 6, ther	its prime factors are
(1	X 6 <b>1</b> X 2 <b>2</b> X 3 <b>2</b> X 6 3
10 If the prime factors of a number are 2 X 2 X	2, then the number is
	(8 • 4 • 6 • 222)
6 Put (✓) in front of the correct statem	ent, and (X) in front of the
wrong statement:	
17 is a prime number.	(
2 22 is a composite number.	(
3 The prime number whose sum of factors i	s <b>8</b> is <b>7</b> .
4 The smallest prime number is 1.	(
5 All prime numbers are <b>odd</b> numbers.	(
6 4 is a prime number because it has more	than two factors. (
7 The smallest even prime number is 2.	(
8 The smallest odd prime number is 3.	(
9 2, 2 and 5 are the prime factors of 10.	(

### Assessment on Lessons 5&6

2 If the factors of a number are 1, 2, 3, 4, 6, 12, then its prime factors are

6

Choose the correct answer:

1 The number of factors of 16 is .......

First:

**a** 3

	<b>3</b> X 4	<b>G</b> 2 x 6	<b>Q</b> 1 x 12	
The smallest prime	number forme	d from two digits	is	
<b>a</b> 2	<b>b</b> 10	<b>©</b> 11	<b>d</b> 12	
<b>4 4</b> is a factor of				
<b>a</b> 14	<b>b</b> 34	<b>©</b> 22	<b>d</b> 32	
5 The two numbers 2		r are prime factors	of	
<b>a</b> 72	<b>5</b> 14	<b>©</b> 27	<b>d</b> 9	
Second: Match:				
1 Factors of 20			<b>a</b> 2, 3, 5, 7	
2 Prime factors of 20			<b>6</b> 1, 2, 4, 5, 10, 2	20
3 Prime numbers less	than <b>10</b>		<b>©</b> 2, 3, 3	
4 Factors of 18			<b>d</b> 2, 2, 5	
5 Prime factors of 18			<b>©</b> 1, 2, 3, 6, 9, 18	3
All prime numbers a  If a X 9 = 36, then a =  The prime factors of  is a factor of the n  A number whose print  Fourth: Factoriz	=	Ones digit is	ог	ne
factor to	ree:			
1 45	2 32		3 60	
45 =	32 =		60 =	
			Exercise Book	0 47 0

### Exercises on Lesson

#### **Greatest Common Factors (GCF)**

4	Find the greatest common factor	(GCF	) of	each of	the	following
_	I ma the greatest common ractor	100.	, 01	CUOITOI	CITO	10110111119

1	12,	8		
	12	=		u
	-		· ·	


2	Complete the following sentences:
	1 If $y = 2 \times 2 \times 2 \times 2$ , then $y =$ 2 If $d = 3 \times 3 \times 5$ , then $d =$
	The factors of 27 are . 4 The factors of 31 are
	The prime factors of 17 are .
	6 The prime factors of 26 are
	7 The greatest common factor of 3 and 5 is
	8 The greatest common factor of 7 and 14 is
	9 The prime number whose factors sum is 12 is
	10 The first number between 90 and 100 is
3	Choose the correct answer:
	1 The prime factors of 14 are ( 2X7 @ 1X14 @ 1X2X7 @ 2X3X4 )
	2 The prime factors of <b>16</b> are (2X8 @ 2X2X4 @ 4X4 @ 2X2X2X2)
	If the <b>prime</b> factors of a number are 2,3,3, then the factors of this
	number are (1,2,3,3 or 1,2,9,18 or 1,2,3,6,9,18 or 1,3,6,19)
	4 If the <b>prime</b> factors of a number are 2,2,5, then the factors of this
	number are
	The greatest common factor of any two prime numbers is
	(the largest number of the smallest number of one of zero)
	6 The greatest common factor of two numbers, one of which is a factor
	of the other is (the largest number of the smaller number
	or the product of the two numbers or the sum of the two numbers)
	7 The greatest common factor of 28 and 14 is
	The greatest common factor of 11 and 5 is
	9 The common <b>prime</b> factors of two numbers are 2, 2, 3, then the <b>GCF</b> For these two numbers (223 of 7 of 12 of 24)
	(22307012027)
	The common factor of two numbers are 1, 2, 3, 6, then the GCF for

these two numbers is

(36 @ 6 @ 12 @ 16)

### Assessment on Lesson 7

First.	Choose the correct	answer:	
1 The prim	e factors of <b>14</b> are		
<b>a</b> 2	<b>b</b> 2,7	<b>©</b> 1, 2, 7, 14	<b>@</b> 2
2 If the pri	<b>me</b> factors of a number a	re <b>2, 2, 3</b> , then the factor	ors of this number are
		0.42	<b>a</b> 1274612
<b>a</b> 2 X 2		<b>©</b> 12	<b>1</b> ,2,3,4,6,12
The grea	test common factor of any	_	
a the la	argest number	<b>b</b> the smallest	
<b>G</b> 1		d there is no o	common factors
4 The grea	test common factor of 21	and <b>7</b> is	
<b>a</b> 7	<b>b</b> 21	<b>©</b> 28	<b>d</b> 14
	mon <b>prime</b> factors of two	numbers are: 2, 3, 5, the	n the GCF of these two
<b>a</b> 6	<b>b</b> 30	<b>C</b> 10	<b>d</b> 2
Second	Complete the follow	ving sentences:	
1 If n = 2 >	X 2 X 7 then, n =		
2 The fact	ors of <b>23</b> are		
3 The prin	ne factors of 19 are		
4 The grea	atest common factor of 8	and <b>5</b> is .	
5 A prime	number whose factors su	m is <b>6</b> is	
Third:	Find the greatest co	ommon factor for ea	ch of the following:
1 30,20		2 12,48	
30 =		12 =	
20 =		48 =	
GCF =	=	GCF =	=
Fourth			
Find the gr	reatest common factor for	the two numbers (6 X 6	o) and (5 X 8).

### Exercises on Lessons 8 & 9

#### Identifying Multiples & Least Common Multiple (LCM)

#### 1 Circle the multiples of the following numbers:

- **1** 3 --- 2 , 6 , 12 , 14 , 21 , 25 , 30 , 37 , 42
- **2** 6 \_\_\_\_ 0 , 2 , 18 , 21 , 30 , 42 , 52 , 56 , 60
- $\boxed{3}$  10  $\longrightarrow$  5, 15, 10, 25, 35, 40, 50, 95, 100
- **4 5 8** , 12 , 25 , 45 , 59 , 85 , 150 , 551 , 15
- **5 7** ---- 2 , 14 , 27 , 35 , 47 , 49 , 63 , 77 , 81

#### 2 Answer the following:

- 1 a List the first 10 multiples of 3:
  - **6** List the first 5 multiples of 6:
  - The common multiples of 3 and 6 of those you listed: ......
- 2 a List the first 7 multiples of 6:
  - **b** List the first 7 multiples of 4:
  - The common multiples of 6 and 4 of those you listed:
    The least common multiple of the two numbers is
- 3 a List the first 5 multiples of 8:
  - **b** List the first **10** multiples of **4**:
- 4 a List the first 10 multiples of 2:
  - **b** List the first 5 multiples of 6:
  - G List the first 8 multiples of 8:
  - The common multiples of 2,6 and 8 of those you listed:......

#### 3 Find the GCF and LCM for each of the following:

1 8,6

3 15,6

5 18,12

7 28, 14



#### choose the correct answer:

1 .....is a multiple of 9.

- (19 0 6 0 3 0 27) 2 14 is a multiple of ...... (4 **o** 7 **o** 21 **o** 28) The common multiple of all numbers is \_\_\_\_\_.  $(1 \odot 2 \odot 3 \odot 0)$ The LCM of 9 and 6 is (54 @ 36 @ 18 @ 9) 5 The LCM of **8** and **10** is \_\_\_\_\_.  $(10 \odot 80 \odot 8 \odot 40)$ 6 .....is a number that has more than one set of factor pairs (Prime number @ Factor @ Multiple @ Composite number) is the number that is **multiplied** by another number to get the (Prime number @ Factor @ Multiple @ Composite number) 8 Counting by jumping is a way to find the ...... of a number.

(the largest number of the smaller number

(sum of factors of multiples of other)

- of the product of the two numbers of the sum of the two numbers)
- 10 The least common multiple of two numbers, one of which is a factor of the other is ...... (the largest number on the smaller number
  - on the product of the two numbers on the sum of the two numbers)



### Assessment on Lessons 8&9

First	Choose the correct an	iswer:					
1	is a multiple of <b>8.</b>						
<b>a</b> 2	<b>6</b> 4	<b>©</b> 16	<b>d</b> 6				
2 24 is a mu	ultiple of						
<b>a</b> 16	<b>b</b> 14	<b>©</b> 8	<b>d</b> 9				
3 The comm	n <b>on multiple</b> of all numbers	is					
<b>a</b> 0	<b>6</b> 1	<b>©</b> 2	<b>d</b> 3				
4 The LCM	of <b>8</b> and <b>4</b> is						
<b>a</b> 4	<b>6</b> 8	<b>©</b> 16	<b>d</b> 12				
5 The LCM	of <b>3</b> and 5 is						
<b>a</b> 8	<b>b</b> 15	<b>©</b> 30	<b>d</b> 45				
Second:	Use the following word	ds to complete:					
	(Prime, factor, One, co						
	is a number with more th						
	is a number that is multi						
3 Skip cour	nting is a way to find the	of a number	er.				
	is a factor of all numbers.						
5 A	number's only factor pair						
Third.	Find the GCF and LCI	M for each of th	e following:				
1 8,16		2 15, 20					
8 =		. 15 =					
16 =		. 20 =					
		CCE	_				
			=				
LCM =							
Fourth: Find the LCM for the numbers 6, 8, and 12.							
1 The mult	tiples of <b>6</b> are:, ,		······· 9 ········ 9 ········ 9 ········				
2 The multiples of 8 are:,,,							
3 The mult	The multiples of 12 are:,						
4 The com	mon multiples are:	5 LCI	M =				

### Exercises on Lesson 10

#### **Factors or Multiples?**

1	Find the	GCF	and	LCM for	each of	the	following:
---	----------	-----	-----	---------	---------	-----	------------

1 12,8	2 6,9
GCF = LCM =	
DCIM =	LCM =
3 16, 20	4 14, 21
GCF =	GCF =
LCM =	
5 6, 15	6 24, 16
GCF =	GCF =
LCM =	
7 45, 30	8 25,15

GCF =

LCM =

2	Answer	the	folloy	vina:
	HIISWEI	uic	TOHO	wiiig.

	Mohamed trains to lift weights every 4 days and trains for tennis every 6 days. After how many days will Mohamed play tennis and lift weights on the same day?
	Omnia has two strips of fabrics. One is 45 centimeters wide, and the other is 75 cm wide. She wants to cut both pieces into strips of equal width that are as wide as possible. How wide should she cut the strips?
3	Ola sells baskets of figs each holding 9. She also sells bags of pomegranates, each holding 7. If she sells the same number of each, what is the smallest quantity of each type of fruit that she sold?
4	Two alarms, one of which rings regularly every two hours, and the other rings regularly every 3 hours. If the two alarms rang together at 12 o'clock, at what hour did they ring together for the first time after that?

5	A dealer has 18 kg of oranges and 27 kg of apples. If the dealer wants to divide the oranges and apples into bags of the same mass. What is the largest number of bags for each type of fruit to have bag with the same
	masses? How many kilograms of oranges will each bag contain? How many kilograms of apples will each bag contain?
6	A hospital has 12 doctors, and 28 nurses. Find the largest number of equal groups that can be formed of both doctors and nurses. How many doctors are in each group? What is the number of nurses in each group?
7	Mahmoud wanted to divide 24 pens and 36 notebooks into groups, so that each group contains the same number of tools. What is the largest number of groups that can be formed for each type of tool, so that each group has the same number?
8	Adel goes to the club every 3 days to train for football, and his friend Ahmed goes to the same club every 4 days to train for volleyball.  After how many days do the two friends meet?

## Assessment on Lesson 10

First	Choose the correct	answer:	
1 The GCF	for <b>12</b> and <b>18</b> is		
<b>a</b> 2	<b>6</b> 3	<b>©</b> 6	<b>d</b> 9
2 The LCM	for <b>6</b> and <b>8</b> is		
<b>a</b> 2	<b>6</b> 24	<b>C</b> 48	<b>d</b> 14
3 The number	per of factors of <b>24</b> is	***************	
<b>a</b> 8	<b>6</b> 6	<b>©</b> 3	<b>1</b> 2
4 Which of	the following is a multiple	e of <b>12</b> ?	
<b>a</b> 6	<b>6</b> 3	<b>©</b> 12	<b>@</b> 4
5 Which of	the following is a commor	n multiple of <b>9</b> and <b>6</b>	?
<b>a</b> 3	<b>6</b> 12	<b>©</b> 27	<b>d</b> 18
Second:	Complete the followi	na sentences:	
	rs of <b>27</b> are	g contented.	
	ples of 6 between 20 and	<b>30</b> are	
	e factors of <b>27</b> are		
	est common factor of <b>18</b> a		
	of <b>12</b> and <b>8</b> is		
Third	Answer the following	<b>1°</b>	
1 Menna is	giving her friends pencils		e sells pencils in boyon
of 8 and e	rasers in boxes of 10. If M	enna wants the same	e number of each what
	imum number of pencils t		
***************************************		·····	
***********************			
2 Nour is ma	aking snack bags for an up	coming trip. He has	6 oranges and 12
	Iried fruit. He wants the sr		
left over. V	Vhat is the greatest number	er of snack bags that	Nour can make?
***************************************			

# Assessment On concept 2

1930			
First	Choose the correct ans	swer:	
1 The	number has only <b>two</b>	factors.	
a prime	<b>6</b> composite	<b>©</b> even	odd odd
<b>1, 2, 5</b> an	d 10 are factors of	******	
<b>a</b> 1	<b>6</b> 5	<b>©</b> 10	<b>d</b> 18
3	is a common multiple of :	<b>10</b> and <b>5</b> .	
<b>a</b> 20	<b>6</b> 15	<b>©</b> 5	<b>@</b> 24
4 All the fo	llowing numbers are multiple	_	
<b>a</b> 16	<b>6</b> 24	<b>©</b> 32	<b>d</b> 36
_	est common factor of 12 and		
<b>a</b> 2	<b>6</b> 3	<b>©</b> 6	<b>d</b> 12
~	Complete the following		
1	is a common factor of all	numbers.	
<b>2</b> 40, 25, 15	are multiples of the number		
3	is a common multiple of	all numbers.	
4 The LCM	of <b>15</b> and <b>30</b> is	•	
5 If 40 = 5	<b>x 8</b> , thenis a multiple of	the two numbers	s and
Third:	Put ( ) for the correct statement:	t statement a	nd (X) for the wrong
<b>1 2</b> is an oc	dd prime number.		( )
The GCF	for the numbers 2 and 3 is 3.		( )
The prime	e factors of <b>18</b> are 1, 2, 3, 6, 9,	18.	( )
<b>4 14</b> is the	LCM of <b>2</b> and <b>14</b> . ( )	<b>5</b> 0 and 7 are	e the multiples of <b>7</b> . ( )
Fourth:	Answer the following:	•	
contains the	eed to divide 21 pens and 35 esame number of tools. What or each type of tool? Seens are in each group? How reach group?	is the largest no	umber of groups that can
many p			

# Multiplication with Whole Numbers

Concept

### 3.1 Models for Multiplication

### Exercises on Lessons 2

The Power of Ten & Using the Area Model to Multiply

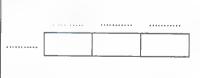
#### 1 Complete the following:

#### 2 Multiply using the area model:



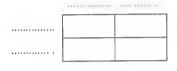
 .		

#### 3 842 X 6 =



4	4	V	24	7	_	
4	4	Х	71	/	=	 

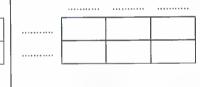






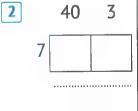


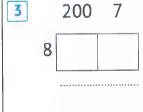




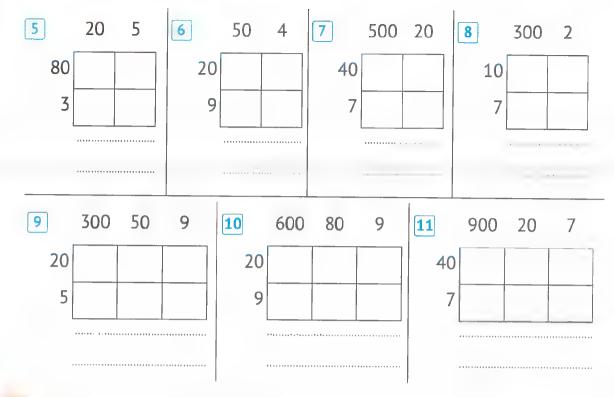
Write the multiplication problem that expresses the following models, and then solve it:

5 5





	400	50	7	
9				
****				

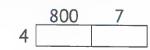


#### Choose the correct answer:

 $(0.06 \odot 0.6 \odot 6 \odot 60)$ 

(5 X 915 or 5 X 183 or 143 or 5 X 12)

The multiplication problem that expresses the corresponding model is .......



(4 X 870 or 4 X 807 or 4 X 780 or 4 X 708)

10	The multiplication problem that expresses	the
	corresponding area model is	

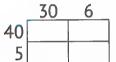
	30	6
20		
7		

(36 X 27 or 63 X 72 or 207 X 306 or 26 X 37)

11 The multiplication problem that expresses the corresponding area model is ......

	300	70	5
10			
9			

(19 X 15 or 19 X 312 or 19 X 375 or 573 X 91)

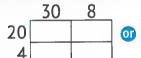


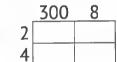


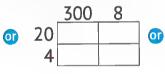


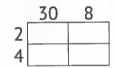


13 The area model that represents 24 X 308 is ...............









14 The area model that represents 67 X 174 is ...............

	1	7	4_
60			
7			

	10	70	40
60			
7			

	100	70	4
60			
7			

or

	100	70	4
60			
7			

15 The multiplication problem that expresses the corresponding area model is .......

600	90
40	6

(690 X 46 @ 640 X 96 @ 23 X 32 @ 203 X 32)

#### 5 Answer the following:

- 1 Hazem bought 7 books, the price of each book is 10 pounds.

  Find what Hazem paid.
- Mona saves 100 pounds every month.

  How much does Mona save in 5 months?
- 3 Amr bought 4 suits, the price of one suit is 10,000 pounds. Find what Amr paid.
- 4 A box contains 200 balls. How many balls are in eight similar boxes?

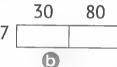


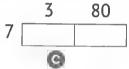
### Assessment on Lessons 1&2

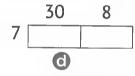
#### First: Choose the correct answer:

#### The model that expresses the following multiplication problem 7 X 308 is ...........

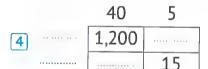
	300	8
7		
	a	







#### Second: Complete the following:



			5
5	**********	*********	350
	5	200	

#### Third. Match:

- **a** 40
- **6** 4,000
- **G** 400
- **d** 40,000
- **6** 400,000

#### Fourth: Answer the following:

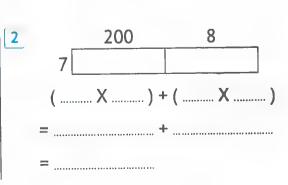
Aya ran a 5-kilometer race on Saturday. If there are 1,000 meters in 1 kilometer, how many meters did she run?

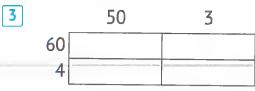
### Exercises on Lessons 3 & 4

### The Distributive Property of Multiplication & Using the Partial Products Model to Multiply

#### 1 Find the product using the Distributive Property:

#### 2 Solve using the area model:



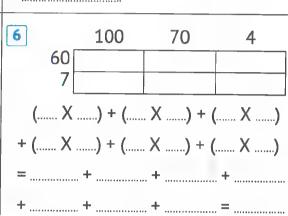


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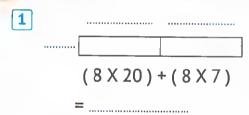
4	40	7
10	)	
7	3	
( X)	+ ( X) + (	X) + (X .

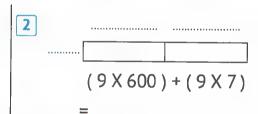


5	400	70	4
20			
4			
( X .	) + (	. X) +	(X)
+ ( X .	) + (	X) +	()
=	+	+	+
+	+	. +	=

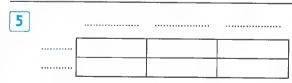


#### Solve using the area model:





3		***************************************	***************************************
	**********		



#### 4 Find the product using the partial products strategy:

3 2 1 65 903 37 9 5 X X X ( ..... X ...... ) + ..... ( ..... X ...... ) + ..... 5 6 4 706 53 86 12 27 X 32 ( X ( ..... X ...... ) ( ..... X ...... ) + ..... 9 7 8 549 638 347 12 Χ ( ..... X ...... ) + ..... ( ...... X ...... ) + ..... ( ..... X ...... ) + ..... ( ..... X ...... ) + .....

Using the rectangle model, find the result of 74 x 12. Divide the numbers in three different ways:















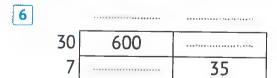








6 Complete the following:



7		3
	8,000	,
4	800	*******

9		10	11	
		95		802
	Χ	X 43		Χ
(5 X 6)	00000080000	( X	(7X)	000000000000
(5 X 30)	+	( X ) +	(7X)	+ ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
(20 X 6)	+	( X ) +	( 40 X)	+
(20 X 30)	+	( ) +	( 40 X)	+
				.,, ,

#### 7 Choose the correct answer:

$$1 \times (600 + 2) = \dots$$
 (5 X 8 or 5 X 62 or 5 X 602 or 5 X 6,002)

$$(50+6) \times (90+3) \odot (50\times6) + (90\times3) \odot (50+6) + (90+3) \odot (5+6) \times (9+3) )$$

$$\boxed{5}$$
 (80X50) + (80X7) + (3X50) + (3X7) = .....

(85 X 37 @ 83 X 57 @ 87 X 35 @ 78 X 35)

2,5	500	300
3	00	36

(56 X 56 @ 25 X 36 @ 65 X 65 @ 300 X 36)

	200	_ 7
40		
8		

(48 X 270 @ 48 X 27 @ 48 X 207 @ 48 X 9)

8	The area	model that repre	esents ( 8X 200 )	) + (	8 X 6)	is
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### 10 The area model that represents

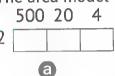
(50 X 70) + (50 X 3) + (4 X 70) + (4 X 3) is ................

-	4	3			70	3		70	4			7	3
50			<u> </u>	50			<u>O</u>	50		0	5		
70				4				. 3			4		

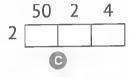
# Assessment on Lessons 3&4

#### Choose the correct answer: First.

- $17 \times (500 + 4) = \dots$ 
  - a 7 X 54
- **5** 7 X 504
- **G** 7 X 5,004
- **a** 7 X 9
- $(60 \times 20) + (60 \times 3) + (7 \times 20) + (7 \times 3) = \dots$ 
  - **a** 67 X 23
- 62 X 73
- **©** 63 X 27
- **a** 76 X 32
- The area model that represents (2 X 500) + (2 X 20) + (2 X 4) is









- - $a 4 \times (6 + 9)$
- $\bullet$  4 X (60 + 9)
- **Q** 4 X (600 + 9) **d** 4 X (60 + 90)

- - a 50 + 6
- $\bigcirc 5 + 6$
- $\mathbf{C}$  50 + 60
- $\bigcirc$  5 + 60

### Second: Complete the following:

- 2 23 X 46 = ( 20 X ...... ) + ( 20 X ...... ) + ( 3 X .... ) + ( 3 X .... )
- $X = (20 \times 500) + (20 \times 6) + (4 \times 500) + (4 \times 6)$

#### Multiply using the following partial products models: Third

- 89
- 45 37 ( ..... X ..... ) + ( ..... X ...... ) +

# Assessment On concept 1

4556551116		Concept	
First. Choose the	e correct answe	er:	
1 5 X 1,000 =	•		
<b>a</b> 50 <b>b</b>	500	<b>©</b> 5,000	<b>d</b> 50,000
25 X 80 =			
<b>a</b> 2 X 10,000 <b>b</b>	2 X 1,000	<b>©</b> 2 X 100	<b>d</b> 2 x 10
The area model that repr	resents (9X 200)+	(9 X 40) + (9 X 5) is	
200 40 5	2 4 5	20 4 5	20 40 5
9 9		9	9
a	•	C	<b>a</b>
4 The multiplication proble		e model represents is	
	49 X 62		40 2
	26 X 94	a madal rapracants is	
The multiplication problem 12 X 32	12 X 302	e model represents is	3,000 20
	102 X 32		600 4
Second: Complete		00 V 7000	
1 8 X = 80,000 3 X = ( 10	•	00 X = 7,000	
4 9 X = 9 × (600 +			+ (7X)
Third: Solve the fo	ollowing problem	is using the mention	oned strategy:
1 2 X 47	2 82 X 15	3 14 X 23	
(Distributive Property)	(Partial P	roducts)	(Area Model)
Fourth: Answer the	e following:		

Omar owns 12 buses to transport tourists, each bus can carry 25 passengers. How many passengers can Omar carry each day if each bus is full?

# 3.2 Multiplying 4-Digit Numbers by 2-Digit Numbers

### Exercises on Lessons 5-7

What Is an Algorithm?, Multiplying Multi-Digit Numbers & Multiplication Problems in the Real World

### 1 Find the product using the standard algorithm for multiplication:

1	82	2 6	08	264
	X 4	X	9	X 7
4	9324	5	39 6	75
	X 8	X 2	25	X 36
				***************************************
		+		+
7	306	8 6:	17	4,107
	X 18	X	54	X 36
				***************************************
	+	+		+
				** **** *
10	6,073	<b>[11</b> ] 8,34	47 12	9,678
	X 48	X 7	76	X 32
	+	+		+

### 2 Find the product using the area model:

	*********	********	*********
 *********	0000505050	044 0000000	0000000000
 *********		*********	

	*********	*********		*********
	FFE 88+44 MF8	*******	*******	*******
*********	*********	********	********	********

		********		********
*********	050-00-000	0-00-00	00000000000	E+++++++
*********	910700000000	*******	400.000.000	6000000000

*********	*********	*********	*********
 *******	********	*********	*******
 	**********	********	*********

	******	********		********
	V-100000000	********		*********
b *********	0044600400	0000000000	0000000000	0100200000

### 3 Find the product using the partial products model:

1

		7,526
	Χ	42
(X	) .	*********
(X	) + .	**************
(X	) + .	********
(X	) + .	**********
( X	) + .	
(X	) +	**********
(X	) +	
( X	) +	****************

2

3	4
5,324	3,294
X 27	X 53
( X	( X
( X	( X
( X ) +	( X
( X ) +	( X ) +
( X ) +	( X
( X	( X ) +
( X ) +	( X ) +
( X	( X ) +
1 7,325 X 12 Estimate: Actual product: The strategy used:	
2 4,537 X 37	
Estimate:	
Actual product:	
The strategy used:	
3 2,314 X 14	
Estimate:	
Actual product:	
The strategy used:	

Number Sense and Operations

4 6,324 X 34 Estimate: Actual product: The strategy used:
Answer the following:  1 Each river bus can carry 22 passengers at a time.
What is the maximum number of passengers that the river bus can carry during 25 trips?
2 A rectangular piece of land has a length of 256 meters, and a width of 62 meters. Find its area.
3 Khaled bought 34 meters of cloth, the price of one meter was 9,560 piasters. What is the price of the cloth that Khaled bought?
A bus is 1,285 centimeters long. How long are 21 buses?
5 Marwan bought a car, and agreed with the owner of the car showroom to pay for it in 12 equal installments, the value of each installment is 9,865 pounds. What is the price of the car?
Mona saves 1,023 pounds every month. What is the total amount that Mona saves in 18 months?
7 16 persons participated in an exhibition, and each won 8,234 pounds.  How much did they all win?
8 A bag of fruit has a mass of <b>2,445</b> grams. What is the mass of <b>45</b> similar bags?

# Assessment On concept 2

Choos	e the correct a	inswer:			
1 The problem that r	epresents the opp	oosite area mode			
<b>a</b> 5,403 X 67	<b>6</b> 5,043 X 67			000 400	3
© 5,430 X 67	<b>d</b> 543 X 67		60 7		-
The problem that r	epresents the opp	oosite area mode	l is	. •	
<b>a</b> 3,502 X 43	<b>b</b> 3,052 X 43		120,000	2,000	80
© 3,520 X 43	<b>d</b> 352 X 43		9,000	150	6
3 The model that rep	resents 6,350 X 7	'3 is			
6,000 300 50	6,000 300 70 3	70 3	30 5 70 T	500 30	5
<b>a</b>	Ь	C		<b>(1)</b>	
<b>4</b> 3,006 X 25 =	<b>b</b> 90,000	<b>©</b> 7,650	0	75,150	
5 2,300 X 30 =					
<b>a</b> 69,000	<b>b</b> 6,900	<b>©</b> 60,900	0	96,000	
Second: Solve to	he following pr	oblems using t	the mention	ed strate	egy:
1 5,080 X 23	<b>2</b> 9,007 X	64	3 2,125 X 74		
(Distributive Propo	erty) (Pa	artial Products)	(4	Area Mod	lel)
				*****************	••••
				***********	
				***************************************	
				*****************	*****
Third: Answe	er the following	<b>)</b> :			
- Huda bought 18 kg			n was <mark>15</mark> poun	ds, and s	he
bought 18 kilogram	ns of mangoes, the				
the total amount th	at Huda paid?				



# lathematical perations nd Algebraic hinking



## Units of the Theme



# Division with Whole Numbers

Concept 4.1: Models for Division

Concept 4.2: Dividing by 2-Digit Divisors



# Multiplication and Division with Decimals

Concept 5.1: Multiplying Decimals

Concept 5.2: Dividing Decimals



# Numerical Expressions and Patterns

Concept 6.1: Evaluating Numerical

Expressions

Concept 6.2: Analyzing Numerical

**Patterns** 



# Division with Whole Numbers

4.1 Models for Division

### Exercises on Lessons 2

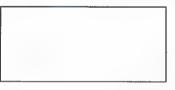
Understanding Division & Using the Area Model to Divide

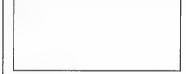
1	Answer	the	follo	wing:
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- 1 A teacher has 96 books and wants to distribute them equally among 4 students. How many books will each student get?
- 2 Hazem bought 7 books. The price of each book is 23 pounds. What did Hazem pay?
- 3 Emad puts 85 cups in boxes, so that each box can accommodate 5 cups. How many boxes are needed for that?
- 4 Samah bought **76** sweets and distributed them equally among **6** of her friends. How many pieces will each friend get? Will there be pieces of sweets left with Samah?
- 5 Mona saves 35 pounds every month. How much does Mona save in 5 months?

- 6 Eman bought 8 books of the same kind for 144 pounds. What is the price of one book?
- A box has 256 balls. How many balls are in eight identical boxes?
- 8 What is the number that if divided by 6, the result is 27?
- 9 What is the number that if divided by 7, the result is 42 and the remainder is 4?
- 10 If the quotient is 5, the divisor is 4 and the remainder is 2, what is the value of the dividend?

2 Divide using the area model:



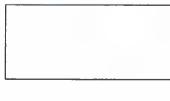


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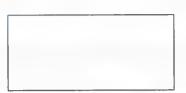


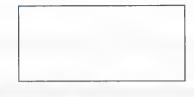




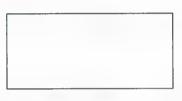
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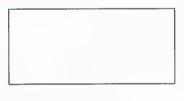
....



10 1,378 ÷ 2 = .......



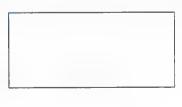
11 2,754 ÷ 3 = ......

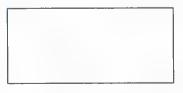


12 3,846 ÷ 5 = ......



13 8,444 ÷ 6 = ......





### Divide using the area model:

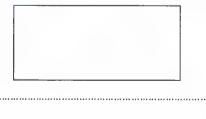


3 714 ÷ 21 = .....

6 1,120 ÷ 32 = .............



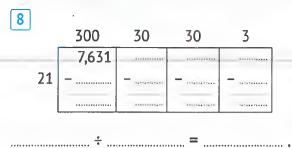
9 16,779 ÷ 47 = ......



11 23,595 ÷ 39 = ......  $10 32,144 \div 82 = \dots$  $1364,158 \div 52 = \dots$  $12 67,814 \div 41 = \dots$ 4 Complete the area model, then find the quotient: 1 3 4,635 135 45 - 4,500 - 135 \_\_\_\_\_= 6 5 100 1,856 356 - 1,500 - 300 - 45 32 - 9,600 356 ÷ ......



	100	100	40	5
	8,575			
35				
		***************************************	*********	************



### 5 Complete the area model, then complete the table:

	Area Model	Dividend	Divisor	Quotient	Remainder
1		56,160	45		
2	200       300       40       2         16,817				
3	24				
4			72	357	12
5	42				

## Assessment on Lessons 1&2

200

8 - 1,600

1.960

360

20

- 160

360

200

### Choose the correct answer:

1	The	division	problen	n that	expresses	the
	oppo	osite mo	del is			

**a** 
$$1,960 \div 8 = 2,225$$
 **b**  $360 \div 8 = 245$ 

**G** 
$$1,960 \div 8 = 245$$

**©** 
$$1,960 \div 8 = 245$$
 **©**  $1,960 \div 8 = 605$ 

2	The	divisor	in the	corresponding	model	is
---	-----	---------	--------	---------------	-------	----

<b>a</b>	14
----------	----

**6** 16

0 2

	10	6
	226	86
14	- 140	- 84
	86	2

20 200

-160

40

5

-40

The remainder of the division in the opposite model is ......

**a** 12

**6** 326

**C** 72

0

	300	20	6
	3,912	312	72
12	- 3,600	- 240	- 72
	312	72	0

The quotient in the opposite model is .......

**a** 435

**6** 4,305

**C** 4,350

**d** 4.035

	4,000	30	5
	254,205	2,205	315
63	- 252,000	- 1,890	- 315
	220,5	315	0

If  $45 \times 12 = 540$ , then the remainder of  $545 \div 12$  is ......

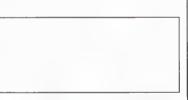
**a** 5

**1**2

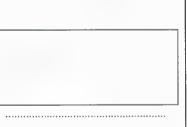
**C** 45

**d** 540

### Second: Use the area model to solve the following problems:



### <sup>2</sup> 3.634 ÷ 12







### Third Answer the following:

- 1 A red hat costs 400 LE, which is 4 times as much as a blue hat. How much does a blue hat cost?
- There are 138 job applicants for a vacancy. They will need to place the applicants in 6 rooms while they fill out the application. How many people will be in each room?

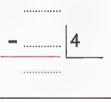
# Exercises on Lessons 3 & 4

### Using the Partial Quotients Model to Divide & **Estimating Quotients**

### Divide using the partial quotients model:

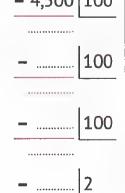
• 88 • Maths Prim. 5 - First Term

Complete using the partial quotients model, then find the quotient:



1,000

	1,000
************	
<u> </u>	200
***********	1
	30
000	



### 4 Complete using the partial quotients model, then complete the table:

1

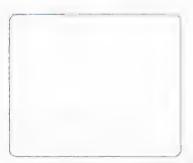
	<b>a</b>	6	C
Partial Quotients Model	<b>3</b> 2337	- 100 - 20 - 30	
Dividend –			
Divisor			
Quotient			
Remainder			

2

	а	Ь	G
Partial Quotients Model	75,257 - 65,000 1,000 - 6,500	- 1,000 - 200 - 200 - 7	- 260 20 - 20 - 20 - 3 0
Dividend			
Divisor			
Quotient			
Remainder			

5 Estimate the quotient, then find the actual result. Use the strategy you prefer:



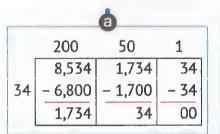


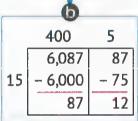


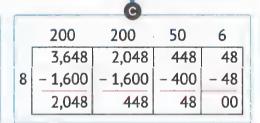
<b>Estimate</b>	=	***************************************	•
Solution	=	***************************************	

### 6 Match:

15	6,087	
	- 3,000	200
	3,087	
	<b>-</b> 3,000	200
	87	
	<del>-</del> . 75	5
	12	







### 7 Answer the following:

- 1 The owner of a juice shop owns 2,880 paper cups. If he uses them within 12 days equally, how many cups did he use every day?
- 2 An association donated 11,250 pounds and it was distributed equally among 45 persons. What is the share of each of them?
- 3 A fruit merchant bought 349 kg of mangoes, and then bought another 364 kg. He wants to distribute the sum of what he bought among 3 boxes equally. How many kilograms are in each box?

# Assessment on Lessons 3&4

### Choose the correct answer:

48 11,232

- - **a** 11.232 **6** 48
  - **©** 234
  - 0

- 9,600 200 1.632 1,440 30 192 192 4
- The remainder of division in the opposite model is .........
  - **a** 36.514
  - **6** 12
  - **©** 3.042
  - **d** 10

- **12** 36,514 - 36,000 **3,000** 
  - 514
    - 480 40 34

**-** 6,500 **100** 

1.560 **- 1,300 | 20** 

260

260 4

0

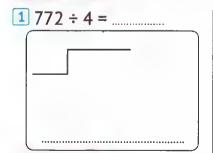
24 **2** 10

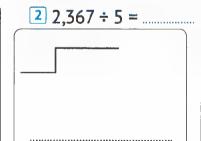
**65** 8,060

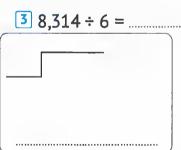
- - **a** 8.060
  - **6**5
  - **©** 124
  - **@** 260
- 4 800 X 30 = .....
  - **a** 240,000
- **6** 24,000
- **©** 2,400
- **d** 240

- 5 500 X ..... = 400,000
  - **a** 800
- **6** 8,000
- **©** 80,000
- 000,000

### Second: Divide using the partial quotients model:







### Third: Answer the following:

Adel bought a car for 69,380 pounds and paid 65,940 pounds of its price, then he paid the rest of its price over four months equally.

What is the value of the monthly installment?

# Assessment On concept

### Choose the correct answer:

- 1 The quotient in the opposite model is
  - **a** 1,226
- **6** 24
- **©** 3,504
- **d** 146
- 2 The divisor in the opposite model is
  - **a** 5,635
  - **D** 23
  - **©** 245
  - **d** 0

	100	20	20	6
	3,504	1,104	624	144
24	- 2,400	- 480	- 480	- 144
	1,104	624	144	0
			-	

23	5,635
	4,600 200
	1,035
_	920 40
	115
_	115 <b>5</b>
_	0

400

15 - 6,000

6.154

154

10

-150

154

- The remainder of division in the opposite model is
  - **a** 15

**6**,154

**C** 410

- **d** 4
- 4 If  $45 \times 24 = 1,080$ , then  $10,800 \div 24 = \dots$ .
  - **a** 45

**6** 24

**G** 450

- **2**40
- 5 If  $26 \times 155 + 20 = 4,050$ , then the remainder of  $4,050 \div 26$  is ........
  - **a** 20

**6** 26

- **©** 155
- **d** 4,050

### Divide using the strategy you prefer:

- 1 45,240 ÷ 9 = ......
- 23,154 ÷ 6 = .....
- 3,096 ÷ 12 = .....
- 4 78,321 ÷ 26 = .....

### Complete the following:

- 1 45,000 ÷ 5 = .....
- 2 40,000 ÷ ..... = 8,000
- 3 = 34 = 10,000
- ÷ 12 = 3,000

### Answer the following:

- 1 If the profit of one of the shops is 7,280 pounds, and they will be distributed equally among 5 persons, what is the share of each person?
- If 168 pupils are divided equally into groups of 12 pupils each, how many groups can we get?

# 4.2 Dividing by 2-Digit Divisors

# Exercises on Lessons 5-7

Using the Standard Algorithm to Divide, Checking Division with Multiplication & Multistep Story Problems

### 1 Divide using the standard division algorithm:

$$71,475 \div 5 = \dots$$

$$94,935 \div 7 = \dots$$

### 2 Divide using the standard division algorithm:

$$1256,373 \div 23 = \dots$$

### 3 Complete the partial quotients model, then find the quotient:

64

5602





6

00



### 4 Divide using different division strategies:

Standard Division Algorithm	Partial Quotients Model	Area Model	Division
	-		10,455 ÷ 85 =
			3,213 ÷ 17
3			50,312 ÷ 38

5	Com	plete	the	foll	owing	۱:
	COIII	ihiere	uic	1011	O 44 II 18	۱.

1	If 35 X 13 = 4	455, then 455	÷ 13 =	
---	----------------	---------------	--------	--

If 
$$6.048 \div 24 = 252$$
, then  $24 \times 252 = \dots$ 

3 If 
$$61 \times 16 = 976$$
, then  $980 \div 61 = 16$  and the remainder is ......

4 If 
$$2,000 \div 54 = 37$$
, and the remainder is 2, then  $37 \times 54 = \dots$ .

- The number that if divided by 34 has a quotient of 102, and the remainder is 11 is

### 6 Answer the following:

1 A bakery made 140 servings of baklava for a party. If each baking tray holds 12 servings of baklava, how many trays will be needed to hold all the baklava?

In one year, a textile factory used **11,650** meters of cotton, **4,950** fewer meters of silk than cotton, and **3,500** fewer meters of wool than silk. How many meters of fabric were used in all?

	An architect is designing a bridge. The architect has two choices for materials. Mighty Steel sells 50 metric tons (t) of steel for 100,000 LE. Silver Strong Steel sells 30 t of steel for 70,000 LE.  If the architect needs 15 t of steel, how much money will be saved by purchasing from Mighty Steel?
4	Zeinab ordered 12 packages of fabric squares to make a quilt. Each package has 18 fabric squares, and Zeinab used all the squares for her quilt. Reem made a quilt that was 13 squares wide by 13 squares long. How many fewer squares did Reem use than Zeinab for her quilt?
5	Nagi sold a total of 30 boxes of sports T-shirts at his store on Monday. These boxes contained only basketball T-shirts and football T-shirts. Each box contained 25 sports T-shirts. He earned 3 LE for each sports T-shirt he sold. He earned a total of 1,134 LE from the football T-shirts he sold. How much money did Nagi earn from the basketball T-shirts he sold?

6	Malek and his family are going on a road trip to his grandmother's house, which is 465 kilometers away. On Friday, they traveled 124 km. On Saturday, they traveled 210 km. How many kilometers will they need to travel on Sunday to reach his grandmother's house?
7	If the total price of 25 books is 1,875 pounds, what is the price of 36 books?
8	Hussam bought a car and paid <b>85,500</b> pounds as a down payment (part of the price), and the rest of the car's price is paid in <b>24</b> equal monthly installments. If the total price of the car is <b>163,500</b> pounds, what is the value of each installment?
9	A school has 456 boys and 419 girls. It is intended to divide boys and girls equally into 25 classes in the school. How many students will be in each class?
10	A rectangular garden with dimensions of 124 meters by 85 meters, divided into rectangular planting basins, each of which is 62 square meters. How many basins are in the garden?

# Assessment On concept

#### First. Choose the correct answer:

1 The quotient in the following division 2 The divisor in the following division model is ......

	0437
<b>a</b> 5,248	<b>12</b> 5,248
_	48
<b>6</b> 12	44
<b>C</b> 4	_ 36
	88
<b>d</b> 437	_ 84
	4

model is ...

		0181
<b>a</b> 4,528	25	4,528
		25
<b>b</b> 25		202
<b>©</b> 3		200
		28
<b>d</b> 181	_	25
		3

The remainder in the following division model is ......

<b>a</b> 954		029
<b>6</b> 32	32	954
		64
<b>©</b> 26		314
<b>d</b> 29	_	288
C 29		

4 From the following division model, 802 =

002		
a 22 X 36 + 10		036
<b>6</b> 22 + 36 X 10	22	802
<b>9</b> 22 + 30 ∧ 10	_	66
© 22 X 36 X 10		142
<b>d</b> 22 + 36 + 10		132
22 + 30 + 10		10

- 5 24,000 ÷ 600 = .....
  - **a** 4

**b** 40

- **G** 400
- **d** 4,000

### Second: Complete the following:

26

### Third: Answer the following:

There are 205 people at a concert. After the concert, 40 people left in cars, the rest of them want to go home by a microbus. If the load of each microbus is 11 people, how many microbuses are needed for everyone to get home?

# Multiplication and Division with Decimals

### 5.1 Multiplying Decimals

### Exercises on Lessons 1 & 2

Multiplying by Powers of Ten & Multiplying Decimals by Whole Numbers

### 1 Find the product of:

### 2 Find the product of:

5 2.6 X 0.6 = 7 3.33 X 5 \_\_\_\_\_\_ 9 253 X 0.003 = ...... 10 0.008 X 5 = = ...... 12 6.35 X 3 11 4.5 X 0.09 \_\_\_\_\_\_ 13 2.4 X 12 = ...... 14 0.45 X 13 15 3.7 X 22 = ...... 16 27 X 2.1 = ..... 17 4.3 X 52 = ..... 19 12.4 X 11 = ...... 20 45 X 2.07 = = ...... 22 0.15 X 124 21 0.365 X 23 23 3.02 X 12 \_\_\_\_\_ 3 Complete the following: 1 .....X 10 2 ..... X 100 = 50= 3.3003 ..... X 1,000 = 20,000 4 X 0.1 = 0.75 X 0.01 = 0.03 6 X 0.001 = 0.0027 X 10 8 X 100 = 5 = 509 ..... X 1,000 = 700 10 X 0.1 = 0.2411 ..... X 0.01 = 0.024 12 X 0.001 = 0.01713 42 X 14 23 X = 420= 2,30015 65 X ..... 16 14 X ..... = 56,000 = 1.417 6.3 X ..... 18 32 X = 0.063= 0.03219 0.05 X 20 63.7 X ..... = 50 = 6,37021 2.05 X 22 0.06 X ..... = 20.5= 0.00623 3.7 X ..... = 3,70024 20 X ..... = 0.02

### 4 Compare using (<, = or >):

- 1 25 X 0.1
- 0.25 X 10
- 2 50 X 0.01
- 0.5 X 100

- 3 73.2 X 0.1
- 0.732 X 100
- 4 36 X 0.1
- 3.6 X 10

- 5 56 X 11
- 5.6 X 11
- 6 45 X 0.12
- 4.5 X 12

- 7 1.44 X10
- 1.2 X 12
- 8 75 X 0.01
- 0.25 X 3

- 9 15 X 0.15
- 2.25 X 0.1
- 10 9 X 0.9
- 8.1 X .01

### 5 Match:

- 25 X100
- 25 X 0.1
- 25 X 0.01

### **a**







- 2.5 X 1,000
- 2.5 X 0.1
- 2.5 X 100
- 0.25 X 10

### 6 Complete the following:

- 1 If 6 X 25 = 150, then 6 X 0.25 = .....
- 2 If 8 X 50 = 400, then 0.8 X 5 = .....
- 3 If 5 X 24 = 120, then 5 X 2.4 = ......
- 4 If 1.2 X 25 = 30, then 12 X 0.25 = .....
- 5 If 0.24 X 5 = 1.2, then 2.4 X 5 = ......
- 6 When multiplying by 0.01, we move the decimal point places to the places.
- 7 When multiplying by ....., we move the decimal point one place to the right
- 8 When multiplying by ....., we move the decimal point 3 places to the left.
- **10** 1.5 X ..... = 30
- 11 10.5 X = 1.05
- 12 0.25 X ..... = 200

- 13 7.5 X ...... = 15
- 14 11 X ..... = 12.1
- 15 0.31 X ..... = 0.93

### Assessment on Lessons 1&2

### Find the product of:

### Second: Compare using (<, = or >):

0.5 X 3

8 X 0.06

0.12 X 10

6.35 X 100

8.25 X 10

#### Third: Match:

2 2.35 X 0.1

3 2.35 X 100

2.35 X 1,000

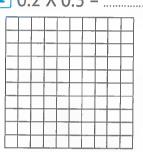
@ 23.5 X 0.01

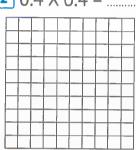
### Fourth Complete the following:

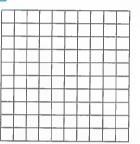
### Exercises on Lessons 3-5

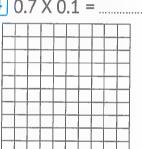
## Multiplying Tenths by Tenths, Estimating Decimal Products & Using the Area Model to Multiply Decimals

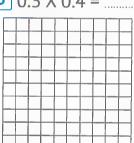
### 1 Use the Base 10 grids to find the product:

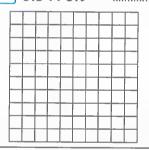


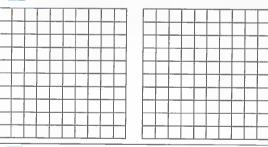


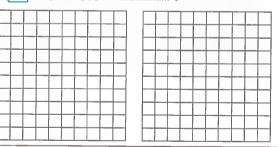




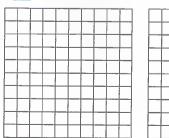




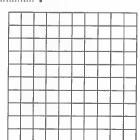








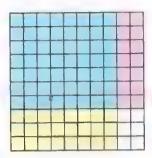




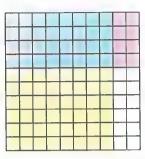
## Write the multiplication problem represented by each of the following Base 10 grids, then find the result:







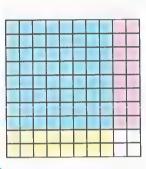
2 ..... X ..... = ......



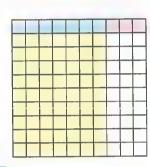
3 ..... X ..... = .....



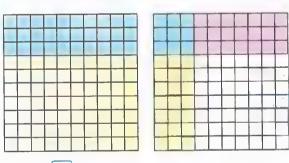
4 ..... X ..... = ......



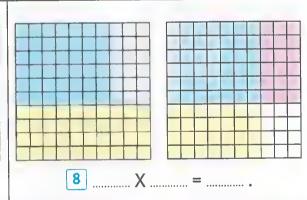
5 ..... X ..... = .....



6 ..... X ..... = .....



7 ..... X ..... = .....



9 X ......

## 3 Estimate the product of the multiplication. Round to the nearest whole number:

1 2.5 X 89.7

Estimate: \_\_\_\_ = \_\_\_

2 6.45 X 20.45

Estimate: X =

3 100.2 X 29.7

Estimate: \_\_\_\_ = \_\_\_\_

4 4.28 X 3.68

Estimate: ..... X ..... =

5 14.8 X 29.7

Estimate: \_\_\_\_ = \_\_\_\_

**6** 99.7 X 3.7

Estimate ..... X ..... =

7 0.24 X 243.4

Estimate: ..... X ..... = .....

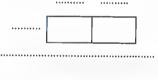
8 6.8 X 63.5

Estimate: ..... X ..... =

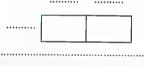
### 4 Multiply using the area model:

	*********	********
l		

2 0.08 X 4.7



3 6 X 20.3



4 0.9 X 4.2

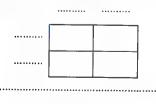
5 0.6 X 3.04



6 9 X 20.3



7 0.12 X 4.5

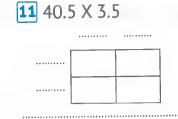


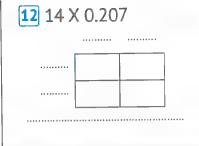
8 63 X 0.74

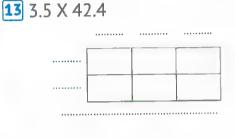
9 0.24 X 2.7

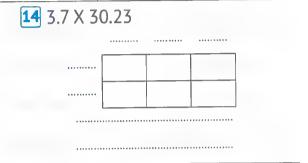
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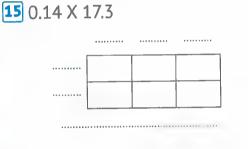


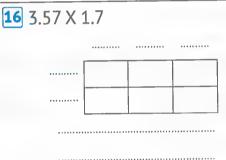




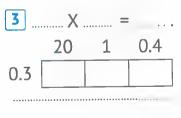




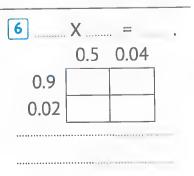




Write the multiplication problem that expresses the following area models, and then solve them:



	4	0.3
0.2		
0.07		



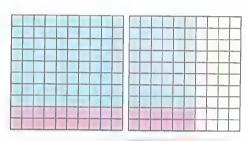
**************	Х		
	0.1	0.04	0.002
40			
7			

	3	0.4	0.09
4			
7			

#### 6 Choose the correct answer:

(16 X 80 or 1.6 X 0.8

oo 160 X 80 oo 1.6 X 8)



(3 X 9 **1** 30 X 0.9 **1** 30 X 90 **1** 0.3 X 0.9)

7 0.3 0.02 50 0.3

- 5 If 12 X 45 = 540, then ...... X 0.45 = 540. (1.2 @ 0.12 @ 120 @ 1,200)
- 6 If 1.3 X 7.2 = 9.36, then 13 X ..... = 93.6. (0.72 7.2 72 720)

(60 @ 6 @ 57 @ 65.4)

(0 0 13 0 12 0 6.1)

(> **o** = **o** < **o** ≤)

 $(> \bigcirc ) = \bigcirc ) < \bigcirc ) \leqslant )$ 

9 35 X 0.2

3.5 X 2

10 3.6 X 0.01

36 X 10

### Assessment on Lessons 3-5

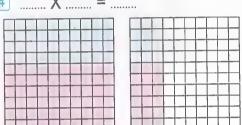
Write the multiplication problem represented by each of the following Base 10 grids, then find the product:













Second Write the multiplication problems that express the following area models, and then solve them:

	10	0.08
90		
0.2		
2		

	800	50	2
0.2			, ,
0.04			
3	-		

### Complete the following:

1 If 2 X 45 = 90, then ...... 
$$X 0.45 = 0.09$$
. 2 If 5 X 3 = 15, then 5 X = 1.5.

### Answer the following:

Marwa is a museum curator. She wants to repaint the museum walls, which are measured in meters. There are four walls, each measuring 3.8 m × 15.2 m. Estimate how many square meters she needs to cover with paint. Explain your answer.

### Exercises on Lessons 0 &

## Multiplying Decimals through the Hundredths Place & Multiplying Decimals through the Thousandths Place

### 1 Multiply (35 x 12) using the standard algorithm, then complete:

35

12

\_\_\_\_

### 2 Multiply (105 X 24) using the standard algorithm, then complete:

3 105 X 0.24 =

24

105

### 3 Multiply using the standard algorithm:

1	36 × 0.7	2 0.368 X 5	3 6.07 × 9	4 115.2 0.06
	***************************************	***************************************	***************************************	
5	4.57	3.336	7 37.07	12.25
	× 5.9	X 21	X 13	3.5
	**********		***************************************	
	+	+	······	
	***********		**************************************	
9	6.35	3,021	20.02	3.27
	X 1.7	× 0.032	× 3.6	24
	***************************************	***************************************	***************************************	
	+	+		***************************************

4 Compare using (<, = or >):

1 2.8 X 3.4 0.28 X 34 2 6.3 X 12 0.63 X 12

3 6.4 X 0.37 64 X 3.7 4 2.2 X 2.2 . . . . 0.22 X 22

**5** 4.5 X 0.2 45 X 20 **6** 6.34 X 32 63.4 X 3.2

7 0.45 X 0.1 4.5 X 10 8 67 X 10.2 67 X 1.2

9 0.5 X 0.8 0.2 X 0.2 10 3.2 X 3.2 0.32 X 320

#### 5 Answer the following:

1 Nada bought 26 meters of fabric. If the price of one meter was 43.5 pounds, how many pounds did Nada pay?

2 Khaled bought 9.5 liters of juice with the price of 12.7 pounds per liter. How many pounds did Khaled pay?

If a pizza costs 22.25 LE, how much does 12 pizzas of the same kind cost?

4 A merchant bought two types of cloth, one at a price of 92.5 pounds per square meter, and the other at a price of 58 pounds per square meter. If he bought 10 meters of the first type and 6.5 meters of the second type, how many pounds did the merchant pay?

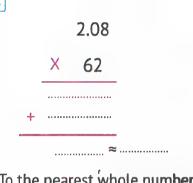
Malik walked 7.9 km on Friday and 3.6 km on Saturday, then Malik repeated that every weekend for 6 weeks. How many total kilometers did Malek walk in 6 weeks?

### Assessment on Lessons 687

### Complete the following:

- 2 If 137 X 21 = 2,877, then 1.37 X ..... = 2.877.
- $\begin{bmatrix} 3 \\ 0.02 \\ X \\ 0.03 \\ = \end{bmatrix}$
- 4 0.3 X = 0.009
- 5 0.2 X 0.3 X 0.5 = .....

### Second: Use the standard algorithm to multiply:



#### (To the nearest Tenth) (To the nearest Hundredth) (To the nearest whole number)

### Third If 452 X 27 = 12,204, then:

- 1 4.52 X 2.7 = .....
- 2 0.452 X 27 = .....
- 3 45.2 X 27 = .....
- 4 4.52 X 2.7 = .....
- 5 4.52 X 0.27 = ......
- 6 0.452 X 0.27 = .....

### Compare using (<, = or >):

- 1 0.8 X 0.3 0.8 X 0.03
- 2 54 X 1.1 0.54 X 11
- 3 0.45 X 10 45 X 0.1
- 4 2.5 X 2.5 625 X 0.1

### Exercises on Lessons 8-10

## Decimals and the Metric System, Measurement, Decimals, and Powers of Ten & Solving Multistep Story Problems

#### 1 Complete:

1 8,523 ml	=	X	=	******************************	iters.
2 954 ml	=	X	 =	•••••••	iters.
3 25 ml	=	X	=	l	iters.
4 78 liters	=	X	 ≂	r	nl.
5 2.5 liters	=	X	 =	r	nl.
6 1.24 liters	=	X	=	r	nl.
7 23 km	=	X	=	me	eters.
8 0.753 km	=	X	=	me	eters.
9 235 m	=	X	=	k	km.
<b>10</b> 3,235 m	=	X	=	k	km.
11 32 m	=	X	=		cm.
12 3.35 m	india.	X	 =		cm.
13 0.12 m	=	X	=		dm.
14 45 cm	=	X	=	r	n.
1,247 cm	=	X	=	r	n.
16 7.5 dm	=	X	=		cm.
17 7.5 kg	=	X	 =	9	gm.
18 85 gm	=			k	kg.
19 235 mm	=	X	=		cm.
20 2.8 cm	=	X	=	r	nm.

#### 2 Choose the correct answer:

1 6.52 kg = ..... gm.

(65.2 @ 652 @ 6,520 @ 65,200)

2 549 gm = ..... kg.

(5,490 **o** 5,49 **o** 54.9 **o** 0.549)

3 62 ml = ..... L.

(620 @ 6.2 @ 0.62 @ 0.062)

- (635 @ 6,350 @ 63,500 @ 635,000)
- 5 45 cm = ..... meters.

(4,500 @ 450 @ 4.5 @ 0.45)

6 0.028 meters = ..... cm.

 $(0.28 \odot 2.8 \odot 28 \odot 280)$ 

7 | 3.2 km = ..... m.

(32 @ 0.32 @ 3,200 @ 0.032)

8 45 meters = ..... km.

 $(0.045 \odot 4,500 \odot 4.5 \odot 450)$ 

9 4.5 cm = ..... mm.

(45 @ 0.45 @ 450 @ 0.045)

10 256 mm = ......cm.

 $(0.256 \odot 2.56 \odot 25.6 \odot 2,560)$ 

### 3 Compare using (<, = or >):

- 1 45 ka
- 4,500 gm
- 2 3.25 cm
- 32.5 mm

- 3 2.5 meters
- 2,500 cm
- 4 63 liters
- 0.063 ml

- 5 5,000 m
- 0.5 km
- 6 0.02 km
- 2,000 mm

- 7 11.5 L
- 15.1 L
- 8 50 cm
- 5 mm

- 9 600 m
- 6 km
- 10 0.025 kg
- 2.5 gm

### 4 Put (✓) in front of the correct statement, and (X) in front of the wrong statement:

1 78 kg = 7,800 g

- 2 3.5 m = 350 cm

- |4| 63 km = 0.063 gm
- )

- 3 200 ml = 0.2 liters

(

- | 5 | 12.5 meters = 1.25 dm
- 6 1 cm = 0.1 mm

Exercise Book 117

<b>4</b> -	0.01	1	,	0.025 111		,
7 10	m = 0.01 meters	(	)	8 25 ml = 0.025 lite	rs (	)
9 10	.2 mm = 1.02 cm	(	)	10 45.3 L = 0.453 ml	(	)
5 Ans	swer the following	<b>g</b> :				
1 Em	nan wants to know h	now muc	h her	neight increased.		
In.	January, she was 1.3	4 m tall	l, and a	t the end of the year sh	ne was <b>145</b>	
cm	tall. How many cen	timeters	s did E	man increase in height	?	
	zem bought <b>7</b> book zem paid.	s, the pr	ice of (	one book is <b>23.5</b> pound	s. Find wha	at
bo	xes of peaches, each	n weighi	ng <b>4,6</b>	ngoes, each weighing 9 00 grams. 5 that the trader has?	.5 kg and	3
 4 If N	Mazen is <b>1.64</b> meter	s tall an	nd Mar	vam is <b>145</b> centimeters	tall.	
				difference between th		
			-	ne drinks <b>1.25</b> liters of er in the afternoon, how		
	water will he drink					-
******		••••••••				

Mathematical Operations and Algebraic Thinking

### Assessment on Lessons 8-10)

First:	Choose the	correct ans	wer:		
1 78.5 m =	cm.				
<b>a</b> 785	<b>6</b> 7.8	85	<b>©</b> 7,850		0.785
2	. kg = 460 gm.				
<b>a</b> 0.46	<b>5</b> 46	50,000	<b>4.60</b>		<b>3</b> 4,600
3 5.2 L =	mL.				
<b>a</b> 0.052	<b>6</b> 0.	52	<b>©</b> 52		5,200
4 2.56 X	= 25.6				
<b>a</b> 10	<b>b</b> 10	00	<b>©</b> 0.1		0.01
5 0.01 X	= 0.025				
<b>a</b> 0.25	<b>6</b> 2.	5	<b>©</b> 25		<b>3</b> 250
0		C . 11 '			
	Complete the	_			
	= X				
_	= X				
	= X				
4,258 cm	= X	= ,	m.	5	X 85 = 0.085
Third:	Compare usi	ing (<, = or	<b>&gt;</b> ):		
1 45 kg	4,500 gm	2	5.02 L	5,020 mL	
<b>3</b> 75 dm	, 750 m	4	25 X 0.01	0.25 X 10	00
Fourth:	Answer the fo	ollowing:			
Ali's cat we	ghs <b>7</b> kilograms	and his dog w	veighs <mark>17</mark> kil	.ograms. Whe	n Ali took them
to the vet, h	e knew that his o	at had gained	d <b>0.45</b> kilogr	ams and his	dog had gained
0.12 kilogra	ams. What is the t	otal weight o	f the two pe	ts now?	

## Assessment On Concept

THE RESIDENCE OF		The Control of the Co	
First Cho	ose the correc	t answer:	
1 The multiplicati	on problem that e	xpresses the corresponding	
model is			
<b>a</b> 0.12 X 0.35	<b>b</b> 1.2 X 3.5		
<b>©</b> 0.3 X 0.5	<b>d</b> 30 X 50		
_	_ `	5 X 0.34 is	
20 5	<b>b</b> 2	0.5 20 0.5	<b>a</b> 2 0.5
30	0.3	3	0.3
5	0.05	0.5	0.5
3 If 25 X 16 = 400			
<b>a</b> 0.04	<b>6</b> 0.4	<b>C</b> 4	<b>d</b> 40
4 0.48 liter =	milliliter.		
<b>a</b> 0.048	<b>b</b> 4.8	<b>©</b> 48	<b>d</b> 480
5 (3 Tenths) X (8	•		
<b>a</b> 0.024	<b>6</b> 0.24	<b>©</b> 24	<b>d</b> 240
Con	plete the follo	wing:	
1 86 X = (	0.086 2 If	f 24 X 12 = 288, then 2.4 X	( 0.012 =
3 25.7 X 9.8 E	stimateX	= ( To the nea	rest whole number )
4,258 gm =	X =	kg. 5 0.7 X 0.8	3 X 0.5 =
Com	npare using (<,	= or >):	
1 0.2 X 0.01	0.4 X 0.05	<b>2</b> 6.2 X 100 0.06	2 X 10
<b>3</b> 75 cm	750 ml	4 1.2 X 3.5 0.12	X 350
Ans	wer the followi	ng:	
1 The length of the	waysa talean by the	viscan been in EQ 7 less 1 lessons	

- 1 The length of the route taken by the river bus is 58.7 km. How many kilometers would the river bus travel if it traveled this route 9 times a day?
- 2 Souad bought 20 meters of fabric. If the price of one meter is 65.5 pounds, what is the price of the whole fabric?

### 5.2 Dividing Decimals

### Exercises on Lessons 11-13

## Dividing by Powers of Ten, Patterns and Relationships in Powers of Ten & Modeling Decimal Division

#### 1 Divide:

### 2 Complete the following:

$$\div 0.01 = 400$$
  $\div 0.001 = 300$ 

### 3 Complete the following patterns:

9 
$$0.05 \div \dots = 0.05 \times \dots = 50$$
 10  $0.005 \div = 0.005 \times \dots = 5$ 

#### 4 Match:

### 5 Compare using (<, = or >):

$$25 \div 0.01$$

$$3 \div 0.001$$

$$1.5 \div 10$$

$$188 \div 0.1$$

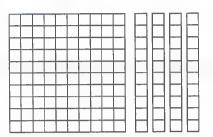
$$0.225 \div 0.1$$

$$2.2 \div 10$$

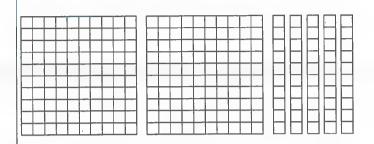
## 6 Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

### 7 Use the Base 10 blocks to model the following problems:

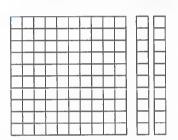
1 1.4 ÷ 0.7 = ......



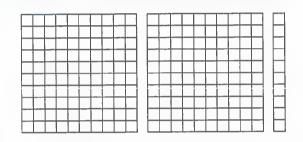
2 2.5 ÷ 0.5 = .....



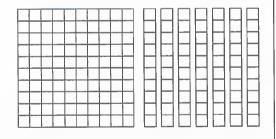
3 1.2 ÷ 0.6 = .....



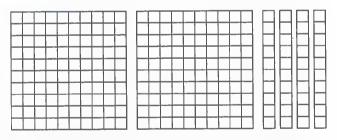
4 2.1 ÷ 0.7 = .....



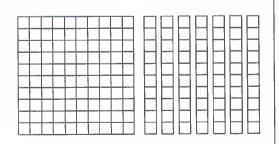
5 1.8 ÷ 0.9 = .....



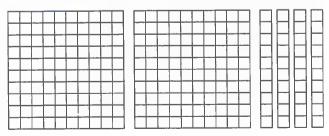
6 2.4 ÷ 0.8 = .....



7 1.8 ÷ 0.45 = ......



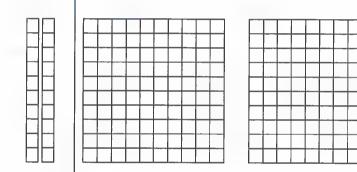
**8** 2.4 ÷ 0.6 = .....



## Assessment on Lessons 11-13

### First Complete the following:

### Second: Use the Base 10 blocks to model the problems and divide:



### Complete each conversion. Then, write a multiplication equation and a division equation with the same answer:

### Fourth Compare using (<, = or >):

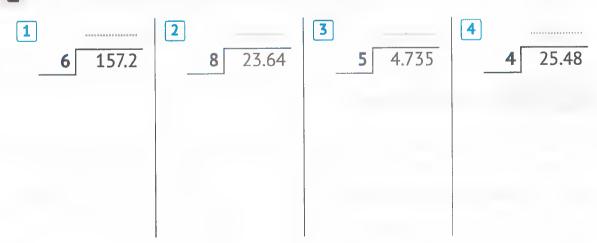
### Exercises on Lessons 14-17

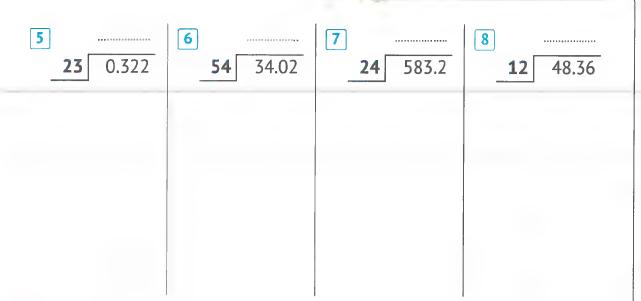
Estimating Decimal Quotients, Dividing Decimals by Whole Numbers, Dividing Decimals by Decimals & Solving Challenging Multistep Story Problems

1 Estimate the decimal quotients in each of the following: (round the dividend to the nearest whole number and the divisor to the nearest compatible whole number)

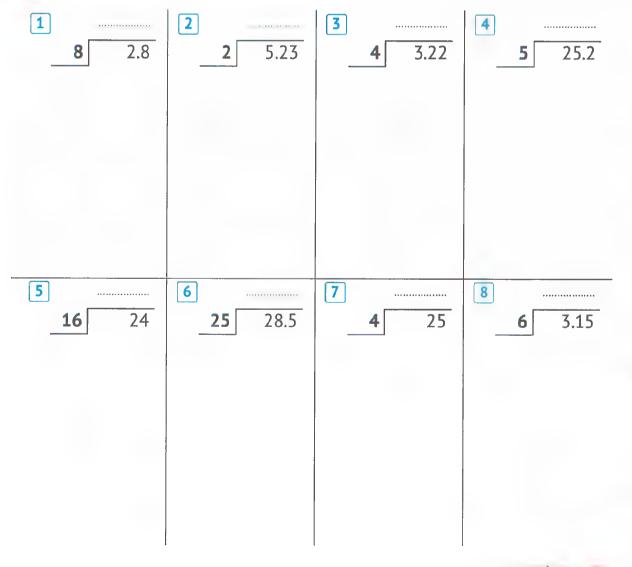
1	56.7 ÷ 8.7	Estimate:	•	=	or			*
---	------------	-----------	---	---	----	--	--	---

2 Use the standard algorithm to divide:





3 Use the standard algorithm to divide:





......

### 5 If $53 \times 31 = 1,643$ , then:

$$71.643 \div 0.31 = \dots$$

### 6 Compare using (<, = or >):

## Assessment on Lessons 14-1

### Use the standard algorithm to divide:

### Second If 434 X 12 = 5,208, then:

### Third Match:

$$\bigcirc$$
 1,225 ÷ 0.25

**12.25** 
$$\div$$
 25

### Fourth Answer the following:

The mass of a package of cake is 0.08 kilogram heavier than the mass of a package of cookies. The mass of 6 packages of cake is the same as the mass of 9 packages of cookies. Label your answers.

What is the mass of a single package of cookies?

What is the mass of a single package of cake?

## Assessment On concept

### Choose the correct answer:

1 liter = 45 milliliters.

**a** 0.045

**6** 45,000

**Q** 0.45

4.500

2 3 Tenths ÷ 5 Hundredths =

**a** 15

**6** 

**©** 0.015

0.06

3 24.7 ÷ ..... = 0.247

**a** 0.01

**6** 0.1

**C** 10

**d** 100

4 9.6 ÷ 0.1 = ....

**a** 9.6 X 0.1

96 X 0.1

**G** 96 X 10

**d** 9.6 X 10

5 0.001 X ..... = 0.25 ÷ 10

**a** 0.25

**6** 2.5

**©** 25

**d** 250

### Complete the following:

1 75.03 ÷ ...... = 750.3 2 18,000 ÷ 100 = ......

3 18 X 0.01 = 18 ÷ ...... mm.

### Match:

1 25 X 0.1

2 2.5 X 0.1

3 2.5 X 0.01

4 2.5 X 10

**a** 2.5 ÷ 10

 $\bigcirc$  2.5 ÷ 0.1

 $\bigcirc$  0.25  $\div$  0.1

 $\bigcirc$  0.25 ÷ 10

### Answer the following:

A factory for the manufacture of pasta produces 832.5 kg of pasta daily, which are packed in bags of 450 grams per bag. Find the number of bags needed for this.

# Numerical Expressions and Patterns

### 6.1 Evaluating Numerical Expressions

### Exercises on Lessons -4

Numerical Expressions, Numerical Expressions with Grouping Symbols, Placing Grouping Symbols & Writing Expressions to Represent Scenarios

1 Use the order of operations to evaluate each expression, one step at a time:

·		
1.5 + 2.5 + 0.7	9.8 - 2.6 - 1.3	8.01 + 7 - 10.02 =
=	=	Official Administration of the Control of the Contr
=	=	=
4 24 - 5.5 + 4.3	5 0.2 X 2 X 4.2 =	6 4.5 ÷ 3 ÷ 0.5 =
=	=	=
7 2.5 X 8 ÷ 0.5 =	8 4.8 ÷ 6 X 0.5 =	9 8 X 2.5 + 10.2
=	=	=
10 4.2 X 10 - 8.2	11 7.5 + 4 X 2.4 =	1.5 – 0.3 X 0.3 =
=	=	=
13 4 ÷ 0.8 + 2.5 =	14 0.36 ÷ 0.9 – 0.4	15 4.2 + 1.6 ÷ 2 =
=	=	=

## 2 Use the order of operations to evaluate each expression, one step at a time:

## 3 Use the order of operations to evaluate each expression, one step at a time:

1 4.2 X (10 - 9.2) =	2 (7.5 - 4) X 0.1 = = =	3 (4.3 + 0.7) X 0.3 = = = =
4 4 X ( 5.8 + 4.2 ) = = = = =	5 0.36 ÷ ( 0.9 – 0.3 ) = = = = = =	6 (4.2 + 1.6) ÷ 2 = = =
7 2.4 ÷ (7.8 – 7.2) = =	8 16 ÷ (0.9 + 0.7) = = = = = =	9 (5.2 – 0.4) ÷ 6 = = =

### 4 Use the order of operations to evaluate each expression:

1 [ 0.85 X ( 2.7 + 7.3 ) ] - 3.5	2 25 + [ 0.5 X (4.2 - 3 ) - 1 ] =
=	=
=	=
3 [ ( 20.5 – 10 ) X 0.3 ] ÷ 0.1	4 [ ( 0.36+1.2 ) ÷ ( 0.6+0.2 ) ] X 5
=	=
=	=
5 12 X [ ( 0.1 + 0.5 ) X 10 ] ÷ 8	6 54 ÷ [ 75 X 0.1 – ( 15÷10 ) ]

= .....

= \_\_\_\_\_\_\_

= \_\_\_\_\_\_

= .....

=

5	Place grouping symbols (parentheses and/or brackets) in the
	expressions to generate the given values. Sometimes grouping
	symbols are not needed.

	ne value is 5 ) 5 X 5.4 + 4.6	
=		
=		
=		

	The 5.6 -	ue is X 6	0.6	)
=	**********	 	••••••	
=		 		• • • • • • •
-				

	The value is 9) 4.5 ÷ 5 X 10	
=		•
=		
=		
=	***************************************	

					_
4 (				is 24) 4.2 + 0	
=	••••	• • • • • • •	***********		***
=					•••
=					•••
=					**1

6 (The value is 3.1) 2.5 + 3.5 + 2.5 X 0.1
=
=
=
=

#### 6 Match:

7 For each problem, write an expression that matches the clues. Then, evaluate the expression:

1 Add 5.9 and 12.6. Then multiply the result by 10.

2 Add 5.25 and 3.1. Then divi the result by 0.1.	de
	*******

3 Multiply 0.542 by 100 and add 2.5.	4 Divide 456 by 10 and add 4.4.
5 Divide 93 by 0.3. Then add 114.7 and divide the result by 5.	6 Add 30.5, 5.5, and 4. Then subtract the result from 125.5 and finally multiply by 100.
7 Multiply 7.6 by 100. Next subtract 34.3. Then add 12.4. Finally divide the result by 0.1.	8 Divide 4.5 by 0.1. Then add 5.5. Multiply by 10.
Answer the following:  1 Adel bought 16.5 kg of apple. He gawants to give the rest to 5 of his feach friend get if he divided it equals	friends. How many kilograms would
Maha walked 2.5 kilometers every week, she walked 54.2 km. How m those three weeks?	day for two weeks. The following any kilometers did she walk during
	Each bag contains 12 balloons. He ds at his birthday party. If he has 8 bons will each friend take?

# Assessment On concept

First: Choose the correct answer:

1 4.5 + 35 X 0.1 = .....

<b>a</b> 8 <b>b</b> 3	.95	<b>©</b> 0.8		<b>d</b> 39.5			
2 1.2 X ( 0.3 + 0.2 ) =							
<b>a</b> 0.56 <b>b</b> 0	.6	<b>©</b> 6		<b>d</b> 5.6			
3 The mathematical expre	ssion that expr	esses "Add 3.5	and 3.7.	Then multiply by			
0.8" is							
<b>a</b> 3.5 + 3.7 × 0.8 <b>b</b> (	3.5 + 3.7 ) X 0.8	<b>©</b> 3.5 + ( 3.7	7 X 0.8 )	<b>d</b> 3.5 X 3.7 + 0.8			
4 The mathematical expre	ssion " 4.5 – 0.3	÷ 1.2 " is exp	pressed as	5:			
a subtract 0.3 from 4.5	.Then divide by	1.2					
<b>b</b> divide 0.3 by 1.2. The	n subtract 4.5						
© subtract 4.5 from 0.3	.Then divide by	1.2					
<b>d</b> divide 0.3 by 1.2. The	n subtract the i	esult from 4.	5				
5 5.6 + 0.5 - 0.4 X 1.5 =							
<b>a</b> 6.1 – 0.6 <b>b</b> 5	.6 + 0.1X 1.5	<b>©</b> 5.6 + 0.5	- 0.6	<b>d</b> 6.1 – 0.4 X 1.5			
Second: Use the ord	der of operat	ions to eva	luate ea	ch expression			
1 9.2 + 2.5 X 4 ÷ 5	2 5 X [ 4.8 ÷ (	8.4 - 7.2 ) ]	3 (6.7 –	2.3) X (8.5 + 2.5)			
=	=		=				
=	=	***************************************	=				
=	=	************************	=				
Third Place grou	pina symbols	(parenthe	ses and	/or brackets) ii			
		**		es. Sometime:			
· ·	ymbols are n	_					
1 (The value is 2.2)	1		3 (The	value is 10.38 )			
2.5 – 3 X 0.07 + 0.03		•		4 X 2 – 2.42			
=							
=	=	***************************************	=	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
=	=	•••••	=				
=	=		=				
Fourth Answer the	e following:						
Hoda is filling identical vas	_	or flower arra	ngements	s at the florist.			
She starts with 15.75 liters			_				
finished, Hoda still has 3.75 L of water left. How much water is in each vase?							
Give your answer in liters. V							
•							

## 6.2 Analyzing Numerical Patterns

### Exercises on Lessons 5-7

Identifying Numerical Patterns, Extending and Creating
Numerical Patterns & Solving Problems with Numerical Patterns

1 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

1	input	Output	2	Input	Output	3	Input	Output	4	Input	Output
	15			18	10		5	*****		1	6
	17	,		28			7	10		2	7
	21	14			30		9	12		3	
	25	18			40		•••••	14		4	
	*****	20		58	50			16		5	

Rule: Rule: Rule:

5	Input	Output	6	Input	Output	7	Input	Output	8	Input	Output
	39		117	3	9		6	************		2	6
	33	***********		6	***************************************		10	5		4	12
	27	9		***********	27		14	7		6	/
	21	7			36			9	752	8	*********
		5		15	45			11		10	************
	Rule:			Rule:			Rule:		160	Rule:	

3 Use the rule shown and complete the table:

1	Input	Output	2	Input	Output	3	Input	Output	4	Input	Output
	15	***********		3	***************************************			12		1	***************************************
		5	-	************	27	1		16		2	*************
	35			15				20		3	***********
		9			72	1,13		24		4	***************************************
	55			27				28	Na	5	··········
	Rule:	n ÷ 5	1	Rule:	nX3		Rule	n-4		Rule	n + 7

4 Using the given information, list the first five numbers in the pattern:

1 Starting number: 3, Rule: n + 5	2 Starting number: 1.2, Rule: n + 0.
3 Starting number: 30, Rule: n X 3	4 Starting number: 45, Rule: n – 4.

5 Starting number: 2, Rule: n x3

6 Starting number: 0.005, Rule: n X 10

7	Starting number: 32	, Rule: n ÷ 2	8	Starting number: 1	, Rule: n ÷ 0	.5

9 Starting number: 4, Rule: n X3 + 1	10 Starting number: 2, Rule: (n+1)X2
--------------------------------------	--------------------------------------

5 Write the rule for each pattern with a variable. Then, complete the pattern by finding the missing values:

1	Input	Output	2	Input	Output	3	Input	Output	4	Input	Output
	7	***********		3	6	0.47	1	***************************************		4	9
-8	11		2 "	9	8	100	2	10		6	13
	15	4		15	10		3	14	7.11	8	17
	19	5		*********	12		4	18		10	
	***********	6		27			**********	22		12	
	27	7	-	33	***********		******	26		14	***************************************
	Rule:		-16	Rule:			Rule:			Rule:	911-1

Rule:	
-------	--

_	
Dula.	
Nute:	

5	Input	Output	6	Input	Output	7	Input	Output	8	Ir
a f	1		S III	1	6		9			
	2			2	11		11	4		
	3	27		3	16		13	5		
	4	64			21		15	6		
	***********	125		5	151		**********	7		E
Y	6	216		6			***********	8		100
	Dulas			Dules			Dodes			D.

Input	Output
2	4
4	16
6	36
8	
10	
12	

### 6 Use a pattern to help you solve each problem:

1 When Salma was six years old, her brother Alaa was twice her age. Complete the following table and answer:

Salma's age	Alaa's age
6	
7	***************************************
***************************************	16
15	***************************************
20	

- What is the age of Alaa when Salma is 12 years old?
- **b** What is the age of Salma when Alaa was 8?

Hussam makes pancakes with sugar, he uses 150 gm of flour to make one pancake. Use the pattern to complete the table:

Number of Pancakes	Amount of Flour (gm)
1	150
2	***************************************
3	450
4	
5	***************************************

- a How much flour will it take to make 6 pancakes?
- **b** How many pancakes does Hossam make using **1.5** kg of flour?

Fouad reads for 3 hours per day. Complete the following table and answer:

Number of Days	Number of Hours
Duys	110013
2	***************************************
5	
	21
8	•••••
10	•••••

- a How many hours does Fouad read in 6 days?
- **b** How many days does Fouad read for 9 hours?

4 Malak travels in her car at a speed of 80 km per hour. Complete the following table and answer:

Number of	Distance			
Hours	(km)			
1.5	***************************************			
2				
***************************************	200			
3				
	400			

- What is the distance traveled by her in 4 hours?
- b How many hours does it take for Malak to travel 360 km?

# Assessment On concept 2

First:	Char	oo the	correct ans					
					ic			
1 The pattern rule of (15,21,27,33,39 a) n + 6 b n - 6								
	-		attern (1,1,2	_				
<b>a</b> 42		<b>5</b> 2	-	<b>©</b> 16	,	<b>@</b> 21		
3 1.5 + n is	the rule	e of						
<b>a</b> 2.5 ,	3.5 , 4.	5 , 5.5	6.5 ,	<b>6</b> 2,3	.5 , 5 ,	6.5 , 8 ,	****	
<b>Q</b> 4, 4.5	5,5,5.5	,6,6.5,.		<b>a</b> 2,4.5	7,9.5	,12 , 14.	5 ,	
4 The rule	of the fo	ollowing	pattern is	5 The rule	of the f	ollowing p	attern is	
	•							
	Input	Output	50-70		Input	Output		
	5	11			31	10		
	6	13		115-771	34	11		
	7	15		-	37	12		
<b>a</b> n X 2	+ 1	<b>(</b> )	n + 1 ) X 2	<b>a</b> n – 1	÷ 3	<b>(</b> ) n )	X 3 + 1	
$\bigcirc n + 1 \times 2$ $\bigcirc (n + 2) \times 1$				<b>G</b> $(n-1) \div 3$ <b>d</b> $n \div 3$			÷ 3 – 1	
Second:	Usin	a the ai	ven informa	ation. list	the firs	st five nu	mbers in	
		attern:	Til Til	,				
1 Starting	number:	5, Rule: r	ı + 5:	.,,,			,	
2 Starting	number:	2, Rule: r	X 2 - 0.5:	<b>,</b>	,	,	,	
Third:	Write	the ru	le for eacl	h pattern	with	a variabl	e. Then.	
			pattern by	•			•	
13,8,13	, 18 ,			Ru	ıle :			
			.,					
4 2,5,11	***************		Rule:					
Fourth:			ollowing:					
The library			the first day o	f EGP <sup>3</sup> in c	ase of t	he delay in	returning	

the book. Another fine is charged for each additional day of  $\frac{2}{2}$  pounds.

pay for the delay? (Indicate your answer)

If Khaled delays returning the book for three days, what is the amount that he will